Table 17
(Continued)
Number of Admissions by Source of Referral, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Other	Total
Kent County (Private)							
Cadia Rehab Capitol	10	127	2	16	2	0	157
Courtland Manor	11	1	0	4	0	0	16
Delaware Veterans Home	6	3	1	2	0	0	12
Pinnacle Rehab & Health	2	278	0	1	0	0	281
Silver Lake Center	0	253	1	6	0	0	260
The Center at Eden Hill	16	461	0	0	0	8	485
Westminster Village	25	70	26	1	0	24	146
Kent County (Private) Total	**70**	**1,193**	**30**	**30**	**2**	**32**	**1,357**
Sussex County (Private)							
Atlantic Shores	8	332	0	9	1	0	350
Cadia Rehab Renaissance	12	295	0	11	1	1	320
Country Rest Home	24	10	2	2	8	8	54
Delmar Nursing & Rehab	12	43	1	0	0	1	57
Harbor Health Care	2	128	0	4	0	2	136
Harrison Senior Living	15	254	0	0	2	5	276
Lofland Park Center	21	206	0	12	2	0	241
Milford Center	10	313	0	10	0	0	333
Polaris Healthcare	0	65	0	6	0	0	71
Seaford Center	5	159	0	20	0	0	184
The Moorings at Lewes	1	93	0	2	0	2	98
WBC Manor House	7	36	16	4	0	0	63
Sussex County (Private) Total	**117**	**1,934**	**19**	**80**	**14**	**19**	**2,183**
Total Private Facilities	**475**	**7,299**	**121**	**172**	**32**	**106**	**8,205**
Public Facilities							
DE Hosp for Chronically Ill	1	2	0	0	30	0	33
Governor Bacon Health Center	0	0	0	0	0	0	0
Public Total	**1**	**2**	**0**	**0**	**30**	**0**	**33**
Total All Facilities	**476**	**7,301**	**121**	**172**	**62**	**106**	**8,238**

Note: NCC=New Castle County.

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Table 18
Percentage of Admissions by Source of Referral, County and Facility, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Other	Total
NCC (Private)							
Brackenville Center	10.0%	80.7%	0.8%	4.0%	0.0%	4.4%	100.0%
Brandywine Nursing & Rehab	6.9%	75.9%	9.8%	0.0%	7.5%	0.0%	100.0%
Cadia Rehab Broadmeadow	0.3%	92.4%	0.3%	6.3%	0.0%	0.6%	100.0%
Cadia Rehab Pike Creek	1.1%	98.5%	0.0%	0.0%	0.0%	0.4%	100.0%
Cadia Rehab Silverside	1.5%	97.8%	0.2%	0.5%	0.0%	0.0%	100.0%
Churchman Village	8.5%	91.5%	0.0%	0.0%	0.0%	0.0%	100.0%
Forwood Manor	3.2%	95.8%	1.1%	0.0%	0.0%	0.0%	100.0%
Foulk Manor North	40.6%	25.0%	18.8%	12.5%	0.0%	3.1%	100.0%
Foulk Manor South	7.7%	38.5%	38.5%	15.4%	0.0%	0.0%	100.0%
Gilpin Hall	50.0%	16.7%	29.2%	4.2%	0.0%	0.0%	100.0%
Hillside Center	5.7%	93.9%	0.3%	0.0%	0.0%	0.0%	100.0%
Jeanne Jugan Residence	54.5%	0.0%	0.0%	18.2%	0.0%	27.3%	100.0%
Kentmere Rehab & Healthcare	1.7%	96.1%	0.9%	0.0%	0.0%	1.3%	100.0%
Kutz Rehab & Nursing	9.3%	72.0%	5.3%	10.7%	0.0%	2.7%	100.0%
ManorCare Pike Creek	2.7%	96.6%	0.0%	0.6%	0.0%	0.1%	100.0%
ManorCare Wilmington	1.3%	98.7%	0.0%	0.0%	0.0%	0.0%	100.0%
Millcroft	0.0%	94.5%	2.2%	1.1%	0.0%	2.2%	100.0%
New Castle Health & Rehab	10.9%	88.0%	0.0%	0.0%	1.1%	0.0%	100.0%
Newark Manor	42.3%	30.8%	19.2%	0.0%	0.0%	7.7%	100.0%
Parkview Nursing & Rehab	16.3%	78.0%	4.3%	1.4%	0.0%	0.0%	100.0%
Regal Heights Healthcare & Rehab	23.5%	74.3%	0.7%	0.0%	0.7%	0.7%	100.0%
Regency Healthcare & Rehab	9.8%	90.2%	0.0%	0.0%	0.0%	0.0%	100.0%
Shipley Manor Health Care	1.1%	94.7%	3.2%	1.1%	0.0%	0.0%	100.0%
Stonegates	50.0%	47.7%	0.0%	2.3%	0.0%	0.0%	100.0%
Weston Senior Living Center	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WBC Cokesbury Village	27.3%	60.0%	12.7%	0.0%	0.0%	0.0%	100.0%
WBC Country House	5.6%	54.9%	0.0%	4.2%	0.0%	35.2%	100.0%
NCC (Private) Total	**6.2%**	**89.4%**	**1.5%**	**1.3%**	**0.3%**	**1.2%**	**100.0%**

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Table 18
(Continued)
Percentage of Admissions by Source of Referral, County and Facility, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Other	Total
Kent County (Private)							
Cadia Rehab Capitol	6.4%	80.9%	1.3%	10.2%	1.3%	0.0%	100.0%
Courtland Manor	68.8%	6.3%	0.0%	25.0%	0.0%	0.0%	100.0%
Delaware Veterans Home	50.0%	25.0%	8.3%	16.7%	0.0%	0.0%	100.0%
Pinnacle Rehab & Health	0.7%	98.9%	0.0%	0.4%	0.0%	0.0%	100.0%
Silver Lake Center	0.0%	97.3%	0.4%	2.3%	0.0%	0.0%	100.0%
The Center at Eden Hill	3.3%	95.1%	0.0%	0.0%	0.0%	1.6%	100.0%
Westminster Village	17.1%	47.9%	17.8%	0.7%	0.0%	16.4%	100.0%
Kent County (Private) Total	**5.2%**	**87.9%**	**2.2%**	**2.2%**	**0.1%**	**2.4%**	**100.0%**
Sussex County (Private)							
Atlantic Shores	2.3%	94.9%	0.0%	2.6%	0.3%	0.0%	100.0%
Cadia Rehab Renaissance	3.8%	92.2%	0.0%	3.4%	0.3%	0.3%	100.0%
Country Rest Home	44.4%	18.5%	3.7%	3.7%	14.8%	14.8%	100.0%
Delmar Nursing & Rehab	21.1%	75.4%	1.8%	0.0%	0.0%	1.8%	100.0%
Harbor Health Care	1.5%	94.1%	0.0%	2.9%	0.0%	1.5%	100.0%
Harrison Senior Living	5.4%	92.0%	0.0%	0.0%	0.7%	1.8%	100.0%
Lofland Park Center	8.7%	85.5%	0.0%	5.0%	0.8%	0.0%	100.0%
Milford Center	3.0%	94.0%	0.0%	3.0%	0.0%	0.0%	100.0%
Polaris Healthcare	0.0%	91.5%	0.0%	8.5%	0.0%	0.0%	100.0%
Seaford Center	2.7%	86.4%	0.0%	10.9%	0.0%	0.0%	100.0%
The Moorings at Lewes	1.0%	94.9%	0.0%	2.0%	0.0%	2.0%	100.0%
WBC Manor House	11.1%	57.1%	25.4%	6.3%	0.0%	0.0%	100.0%
Sussex County (Private) Total	**5.4%**	**88.6%**	**0.9%**	**3.7%**	**0.6%**	**0.9%**	**100.0%**
Total Private Facilities	**5.8%**	**89.0%**	**1.5%**	**2.1%**	**0.4%**	**1.3%**	**100.0%**
Public Facilities							
DE Hosp for Chronically Ill	3.0%	6.1%	0.0%	0.0%	90.9%	0.0%	100.0%
Governor Bacon Health Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public Total	**3.0%**	**6.1%**	**0.0%**	**0.0%**	**90.9%**	**0.0%**	**100.0%**
Total All Facilities	**5.8%**	**88.6%**	**1.5%**	**2.1%**	**0.8%**	**1.3%**	**100.0%**

Note: NCC=New Castle County.

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Table 19
Number of Admissions by County and State of Residence, 2020

Nursing Home	NCC	Kent	Sussex	MD	NJ	PA	Other	Total
NCC (Private)								
Brackenville Center	205	8	7	6	2	18	3	249
Brandywine Nursing & Rehab	172	0	1	1	0	0	0	174
Cadia Rehab Broadmeadow	291	20	6	9	0	5	0	331
Cadia Rehab Pike Creek	499	6	2	5	1	12	0	525
Cadia Rehab Silverside	381	3	5	1	1	11	0	402
Churchman Village	156	0	1	4	0	4	0	165
Forwood Manor	190	0	0	0	0	0	0	190
Foulk Manor North	24	0	0	0	0	7	1	32
Foulk Manor South	13	0	0	0	0	0	0	13
Gilpin Hall	23	1	0	0	0	0	0	24
Hillside Center	280	0	2	3	0	12	0	297
Jeanne Jugan Residence	11	0	0	0	0	0	0	11
Kentmere Rehab & Healthcare	224	1	0	0	0	7	0	232
Kutz Rehab & Nursing	75	0	0	0	0	0	0	75
ManorCare Pike Creek	664	2	0	1	0	12	0	679
ManorCare Wilmington	295	4	2	1	2	4	6	314
Millcroft	91	0	0	0	0	0	0	91
New Castle Health & Rehab	174	0	0	0	0	1	0	175
Newark Manor	24	0	0	0	0	2	0	26
Parkview Nursing & Rehab	134	3	1	0	0	3	0	141
Regal Heights Healthcare & Rehab	131	0	2	0	0	1	2	136
Regency Healthcare & Rehab	91	1	0	0	0	0	0	92
Shipley Manor Health Care	94	0	0	0	0	0	0	94
Stonegates	44	0	0	0	0	0	0	44
Weston Senior Living Center	27	0	0	0	0	0	0	27
WBC Cokesbury Village	54	0	0	0	0	1	0	55
WBC Country House	70	0	0	1	0	0	0	71
NCC (Private) Total	**4,437**	**49**	**29**	**32**	**6**	**100**	**12**	**4,665**

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Table 19
(Continued)
Number of Admissions by County and State of Residence, 2020

Nursing Home	NCC	Kent	Sussex	MD	NJ	PA	Other	Total
Kent County (Private)								
Cadia Rehab Capitol	2	152	3	0	0	0	0	157
Courtland Manor	1	13	2	0	0	0	0	16
Delaware Veterans Home	0	4	7	1	0	0	0	12
Pinnacle Rehab & Health	35	227	8	0	0	11	0	281
Silver Lake Center	6	236	16	2	0	0	0	260
The Center at Eden Hill	7	412	48	12	0	2	4	485
Westminster Village	6	137	2	1	0	0	0	146
Kent County (Private) Total	**57**	**1,181**	**86**	**16**	**0**	**13**	**4**	**1,357**
Sussex County (Private)								
Atlantic Shores	28	35	205	72	0	7	3	350
Cadia Rehab Renaissance	16	5	287	12	0	0	0	320
Country Rest Home	4	12	34	3	0	0	1	54
Delmar Nursing & Rehab	0	1	29	27	0	0	0	57
Harbor Health Care	9	9	111	3	0	3	1	136
Harrison Senior Living	2	22	238	12	0	2	0	276
Lofland Park Center	1	21	211	5	1	0	2	241
Milford Center	27	95	188	7	0	16	0	333
Polaris Healthcare	1	14	55	0	0	1	0	71
Seaford Center	3	24	129	23	0	5	0	184
The Moorings at Lewes	0	1	91	4	0	1	1	98
WBC Manor House	0	0	60	2	0	1	0	63
Sussex County (Private) Total	**91**	**239**	**1,638**	**170**	**1**	**36**	**8**	**2,183**
Total Private Facilities	**4,585**	**1,469**	**1,753**	**218**	**7**	**149**	**24**	**8,205**
Public Facilities								
DE Hosp for Chronically Ill	30	2	1	0	0	0	0	33
Governor Bacon Health Center	0	0	0	0	0	0	0	0
Public Total	**30**	**2**	**1**	**0**	**0**	**0**	**0**	**33**
Total All Facilities	**4,615**	**1,471**	**1,754**	**218**	**7**	**149**	**24**	**8,238**

Note: NCC=New Castle County.

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Table 20
Percentage of Admissions by County and State of Residence, 2020

Nursing Home	NCC	Kent	Sussex	MD	NJ	PA	Other	Total
NCC (Private)								
Brackenville Center	82.3%	3.2%	2.8%	2.4%	0.8%	7.2%	1.2%	100.0%
Brandywine Nursing & Rehab	98.9%	0.0%	0.6%	0.6%	0.0%	0.0%	0.0%	100.0%
Cadia Rehab Broadmeadow	87.9%	6.0%	1.8%	2.7%	0.0%	1.5%	0.0%	100.0%
Cadia Rehab Pike Creek	95.0%	1.1%	0.4%	1.0%	0.2%	2.3%	0.0%	100.0%
Cadia Rehab Silverside	94.8%	0.7%	1.2%	0.2%	0.2%	2.7%	0.0%	100.0%
Churchman Village	94.5%	0.0%	0.6%	2.4%	0.0%	2.4%	0.0%	100.0%
Forwood Manor	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Foulk Manor North	75.0%	0.0%	0.0%	0.0%	0.0%	21.9	3.1%	100.0%
Foulk Manor South	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Gilpin Hall	95.8%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Hillside Center	94.3%	0.0%	0.7%	1.0%	0.0%	4.0%	0.0%	100.0%
Jeanne Jugan Residence	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Kentmere Rehab & Healthcare	96.6%	0.4%	0.0%	0.0%	0.0%	3.0%	0.0%	100.0%
Kutz Rehab & Nursing	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
ManorCare Pike Creek	97.8%	0.3%	0.0%	0.1%	0.0%	1.8%	0.0%	100.0%
ManorCare Wilmington	93.9%	1.3%	0.6%	0.3%	0.6%	1.3%	1.9%	100.0%
Millcroft	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
New Castle Health & Rehab	99.4%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	100.0%
Newark Manor	92.3%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%	100.0%
Parkview Nursing & Rehab	95.0%	2.1%	0.7%	0.0%	0.0%	2.1%	0.0%	100.0%
Regal Heights Healthcare & Rehab	96.3%	0.0%	1.5%	0.0%	0.0%	0.7%	1.5%	100.0%
Regency Healthcare & Rehab	98.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Shipley Manor Health Care	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Stonegates	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Weston Senior Living Center	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WBC Cokesbury Village	98.2%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	100.0%
WBC Country House	98.6%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	100.0%
NCC (Private) Total	**95.1%**	**1.1%**	**0.6%**	**0.7%**	**0.1%**	**2.1%**	**0.3%**	**100.0%**

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Table 20
(Continued)
Percentage of Admissions by County and State of Residence, 2020

Nursing Home	NCC	Kent	Sussex	MD	NJ	PA	Other	Total
Kent County (Private)								
Cadia Rehab Capitol	1.3%	96.8%	1.9%	0.0%	0.0%	0.0%	0.0%	100.0%
Courtland Manor	6.3%	81.3%	12.5%	0.0%	0.0%	0.0%	0.0%	100.0%
Delaware Veterans Home	0.0%	33.3%	58.3%	8.3%	0.0%	0.0%	0.0%	100.0%
Pinnacle Rehab & Health	12.5%	80.8%	2.8%	0.0%	0.0%	3.9%	0.0%	100.0%
Silver Lake Center	2.3%	90.8%	6.2%	0.8%	0.0%	0.0%	0.0%	100.0%
The Center at Eden Hill	1.4%	84.9%	9.9%	2.5%	0.0%	0.4%	0.8%	100.0%
Westminster Village	4.1%	93.8%	1.4%	0.7%	0.0%	0.0%	0.0%	100.0%
Kent County (Private) Total	**4.2%**	**87.0%**	**6.3%**	**1.2%**	**0.0%**	**1.0%**	**0.3%**	**100.0%**
Sussex County (Private)								
Atlantic Shores	8.0%	10.0%	58.6%	20.6%	0.0%	2.0%	0.9%	100.0%
Cadia Rehab Renaissance	5.0%	1.6%	89.7%	3.8%	0.0%	0.0%	0.0%	100.0%
Country Rest Home	7.4%	22.2%	63.0%	5.6%	0.0%	0.0%	1.9%	100.0%
Delmar Nursing & Rehab	0.0%	1.8%	50.9%	47.4%	0.0%	0.0%	0.0%	100.0%
Harbor Health Care	6.6%	6.6%	81.6%	2.2%	0.0%	2.2%	0.7%	100.0%
Harrison Senior Living	0.7%	8.0%	86.2%	4.3%	0.0%	0.7%	0.0%	100.0%
Lofland Park Center	0.4%	8.7%	87.6%	2.1%	0.4%	0.0%	0.8%	100.0%
Milford Center	8.1%	28.5%	56.5%	2.1%	0.0%	4.8%	0.0%	100.0%
Polaris Healthcare	1.4%	19.7%	77.5%	0.0%	0.0%	1.4%	0.0%	100.0%
Seaford Center	1.6%	13.0%	70.1%	12.5%	0.0%	2.7%	0.0%	100.0%
The Moorings at Lewes	0.0%	1.0%	92.9%	4.1%	0.0%	1.0%	1.0%	100.0%
WBC Manor House	0.0%	0.0%	95.2%	3.2%	0.0%	1.6%	0.0%	100.0%
Sussex County (Private) Total	**4.2%**	**10.9%**	**75.0%**	**7.8%**	**0.0%**	**1.6%**	**0.4%**	**100.0%**
Total Private Facilities	**55.9%**	**17.9%**	**21.4%**	**2.7%**	**0.1%**	**1.8%**	**0.3%**	**100.0%**
Public Facilities								
DE Hosp for Chronically Ill	90.9%	6.1%	3.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Governor Bacon Health Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public Total	**90.9%**	**6.1%**	**3.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**100.0%**
Total All Facilities	**56.0%**	**17.9%**	**21.3%**	**2.6%**	**0.1%**	**1.8%**	**0.3%**	**100.0%**

Note: NCC=New Castle County.

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Table 21
Number of Discharges by Age, Gender, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
NCC (Private)											
Brackenville Center	9	9	11	37	30	53	29	72	79	171	250
Brandywine Nursing & Rehab	6	4	45	25	34	33	52	77	137	139	276
Cadia Rehab Broadmeadow	14	19	26	42	42	70	46	76	128	207	335
Cadia Rehab Pike Creek	99	94	46	76	60	65	31	74	236	309	545
Cadia Rehab Silverside	32	20	57	51	56	66	31	79	176	216	392
Churchman Village	19	3	8	26	38	34	26	52	91	115	206
Forwood Manor	0	0	6	12	25	39	38	80	69	131	200
Foulk Manor North	0	0	1	1	2	6	5	18	8	25	33
Foulk Manor South	0	0	1	2	0	5	12	16	13	23	36
Gilpin Hall	0	4	1	2	1	1	7	21	9	28	37
Hillside Center	51	38	52	37	39	30	28	27	170	132	302
Jeanne Jugan Residence	0	0	0	2	1	4	2	14	3	20	23
Kentmere Rehab & Healthcare	4	3	13	14	33	38	23	87	73	142	215
Kutz Rehab & Nursing	1	1	5	8	8	18	12	30	26	57	83
ManorCare Pike Creek	69	61	89	108	93	114	93	104	344	387	731
ManorCare Wilmington	44	38	60	65	39	61	46	52	189	216	405
Millcroft	3	0	2	4	14	17	22	47	41	68	109
New Castle Health & Rehab	7	13	11	12	8	6	3	4	29	35	64
Newark Manor	0	0	0	0	0	2	2	11	2	13	15
Parkview Nursing & Rehab	16	12	22	23	28	32	12	35	78	102	180
Regal Heights Healthcare &	4	2	14	14	26	27	20	33	64	76	140
Regency Healthcare & Rehab	12	3	10	23	4	12	6	12	32	50	82
Shipley Manor Health Care	0	0	3	2	18	19	23	52	44	73	117
Stonegates	0	0	1	0	2	10	10	19	13	29	42
Weston Senior Living Center	3	3	0	0	6	0	6	3	15	6	21
WBC Cokesbury Village	0	0	0	0	3	7	17	35	20	42	62
WBC Country House	0	0	0	0	6	20	15	40	21	60	81
NCC (Private) Total	**393**	**327**	**484**	**586**	**616**	**789**	**617**	**1,170**	**2,110**	**2,872**	**4,982**

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Table 21
(Continued)
Number of Discharges by Age, Gender, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
Kent County (Private)											
Cadia Rehab Capitol	14	9	21	17	19	30	18	43	72	99	171
Courtland Manor	0	1	1	0	0	2	4	14	5	17	22
Delaware Veterans Home	3	0	3	0	7	0	10	4	23	4	27
Pinnacle Rehab & Health	28	22	44	39	48	38	13	17	133	116	249
Silver Lake Center	36	27	27	23	35	28	18	34	116	112	228
The Center at Eden Hill	16	29	42	82	80	104	63	97	201	312	513
Westminster Village	2	5	15	16	19	20	24	41	60	82	142
Kent County (Private) Total	**99**	**93**	**153**	**177**	**208**	**222**	**150**	**250**	**610**	**742**	**1,352**
Sussex County (Private)											
Atlantic Shores	35	30	45	44	44	51	42	62	166	187	353
Cadia Rehab Renaissance	7	7	19	36	56	86	46	96	128	225	353
Country Rest Home	0	1	2	1	11	11	7	25	20	38	58
Delmar Nursing & Rehab	2	1	7	6	9	21	10	15	28	43	71
Harbor Health Care	6	4	22	16	24	33	27	35	79	88	167
Harrison Senior Living	5	13	42	44	53	76	39	75	139	208	347
Lofland Park Center	11	22	19	31	32	35	18	36	80	124	204
Milford Center	42	44	44	42	40	61	28	40	154	187	341
Polaris Healthcare	6	4	4	8	7	9	2	16	19	37	56
Seaford Center	33	24	28	37	28	30	6	18	95	109	204
The Moorings at Lewes	0	0	9	4	16	25	13	47	38	76	114
WBC Manor House	0	0	1	4	3	9	21	57	25	70	95
Sussex County (Private) Total	**147**	**150**	**242**	**273**	**323**	**447**	**259**	**522**	**971**	**1,392**	**2,363**
Total Private Facilities	**639**	**570**	**879**	**1,036**	**1,147**	**1,458**	**1,026**	**1,942**	**3,691**	**5,006**	**8,697**
Public Facilities											
DE Hosp for Chronically Ill	3	5	7	2	8	4	1	5	19	16	35
Governor Bacon Health	1	7	2	7	0	5	0	4	3	23	26
Public Total	**4**	**12**	**9**	**9**	**8**	**9**	**1**	**9**	**22**	**39**	**61**
Total All Facilities	**643**	**582**	**888**	**1,045**	**1,155**	**1,467**	**1,027**	**1,951**	**3,713**	**5,045**	**8,758**

Note: NCC=New Castle County.

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Table 22
Percentage of Discharges by Age, Facility Type, County and Facility, 2020

Nursing Home	Under 65	65-74	75-84	85+	Total
NCC (Private)					
Brackenville Center	7.2%	19.2%	33.2%	40.4%	100.0%
Brandywine Nursing & Rehab	3.6%	25.4%	24.3%	46.7%	100.0%
Cadia Rehab Broadmeadow	9.9%	20.3%	33.4%	36.4%	100.0%
Cadia Rehab Pike Creek	35.4%	22.4%	22.9%	19.3%	100.0%
Cadia Rehab Silverside	13.3%	27.6%	31.1%	28.1%	100.0%
Churchman Village	10.7%	16.5%	35.0%	37.9%	100.0%
Forwood Manor	0.0%	9.0%	32.0%	59.0%	100.0%
Foulk Manor North	0.0%	6.1%	24.2%	69.7%	100.0%
Foulk Manor South	0.0%	8.3%	13.9%	77.8%	100.0%
Gilpin Hall	10.8%	8.1%	5.4%	75.7%	100.0%
Hillside Center	29.5%	29.5%	22.8%	18.2%	100.0%
Jeanne Jugan Residence	0.0%	8.7%	21.7%	69.6%	100.0%
Kentmere Rehab & Healthcare	3.3%	12.6%	33.0%	51.2%	100.0%
Kutz Rehab & Nursing	2.4%	15.7%	31.3%	50.6%	100.0%
ManorCare Pike Creek	17.8%	26.9%	28.3%	26.9%	100.0%
ManorCare Wilmington	20.2%	30.9%	24.7%	24.2%	100.0%
Millcroft	2.8%	5.5%	28.4%	63.3%	100.0%
New Castle Health & Rehab	31.3%	35.9%	21.9%	10.9%	100.0%
Newark Manor	0.0%	0.0%	13.3%	86.7%	100.0%
Parkview Nursing & Rehab	15.6%	25.0%	33.3%	26.1%	100.0%
Regal Heights Healthcare & Rehab	4.3%	20.0%	37.9%	37.9%	100.0%
Regency Healthcare & Rehab	18.3%	40.2%	19.5%	22.0%	100.0%
Shipley Manor Health Care	0.0%	4.3%	31.6%	64.1%	100.0%
Stonegates	0.0%	2.4%	28.6%	69.0%	100.0%
Weston Senior Living Center	28.6%	0.0%	28.6%	42.9%	100.0%
WBC Cokesbury Village	0.0%	0.0%	16.1%	83.9%	100.0%
WBC Country House	0.0%	0.0%	32.1%	67.9%	100.0%
NCC (Private) Total	**14.5%**	**21.5%**	**28.2%**	**35.9%**	**100.0%**

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Table 22
(Continued)
Percentage of Discharges by Age, Facility Type, County and Facility, 2020

Nursing Home	Under 65	65-74	75-84	85+	Total
Kent County (Private)					
Cadia Rehab Capitol	13.5%	22.2%	28.7%	35.7%	100.0%
Courtland Manor	4.5%	4.5%	9.1%	81.8%	100.0%
Delaware Veterans Home	11.1%	11.1%	25.9%	51.9%	100.0%
Pinnacle Rehab & Health	20.1%	33.3%	34.5%	12.0%	100.0%
Silver Lake Center	27.6%	21.9%	27.6%	22.8%	100.0%
The Center at Eden Hill	8.8%	24.2%	35.9%	31.2%	100.0%
Westminster Village	4.9%	21.8%	27.5%	45.8%	100.0%
Kent County (Private) Total	**14.2%**	**24.4%**	**31.8%**	**29.6%**	**100.0%**
Sussex County (Private)					
Atlantic Shores	18.4%	25.2%	26.9%	29.5%	100.0%
Cadia Rehab Renaissance	4.0%	15.6%	40.2%	40.2%	100.0%
Country Rest Home	1.7%	5.2%	37.9%	55.2%	100.0%
Delmar Nursing & Rehab	4.2%	18.3%	42.3%	35.2%	100.0%
Harbor Health Care	6.0%	22.8%	34.1%	37.1%	100.0%
Harrison Senior Living	5.2%	24.8%	37.2%	32.9%	100.0%
Lofland Park Center	16.2%	24.5%	32.8%	26.5%	100.0%
Milford Center	25.2%	25.2%	29.6%	19.9%	100.0%
Polaris Healthcare	17.9%	21.4%	28.6%	32.1%	100.0%
Seaford Center	27.9%	31.9%	28.4%	11.8%	100.0%
The Moorings at Lewes	0.0%	11.4%	36.0%	52.6%	100.0%
WBC Manor House	0.0%	5.3%	12.6%	82.1%	100.0%
Sussex County (Private) Total	**12.6%**	**21.8%**	**32.6%**	**33.1%**	**100.0%**
Total Private Facilities	**13.9%**	**22.0%**	**30.0%**	**34.1%**	**100.0%**
Public Facilities					
DE Hosp for Chronically Ill	22.9%	25.7%	34.3%	17.1%	100.0%
Governor Bacon Health Center	30.8%	34.6%	19.2%	15.4%	100.0%
Public Total	**26.2%**	**29.5%**	**27.9%**	**16.4%**	**100.0%**
Total All Facilities	**14.0%**	**22.1%**	**29.9%**	**34.0%**	**100.0%**

Note: NCC=New Castle County.

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Table 23
Percentage of Discharges by Gender, Facility Type, County and Facility Name, 2020

Nursing Home	Male	Female	Nursing Home	Male	Female
NCC (Private)			**Kent County (Private)**		
Brackenville Center	31.6%	68.4%	Cadia Rehab Capitol	42.1%	57.9%
Brandywine Nursing & Rehab	49.6%	50.4%	Courtland Manor	22.7%	77.3%
Cadia Rehab Broadmeadow	38.2%	61.8%	Delaware Veterans Home	85.2%	14.8%
Cadia Rehab Pike Creek	43.3%	56.7%	Pinnacle Rehab & Health	53.4%	46.6%
Cadia Rehab Silverside	44.9%	55.1%	Silver Lake Center	50.9%	49.1%
Churchman Village	44.2%	55.8%	The Center at Eden Hill	39.2%	60.8%
Forwood Manor	34.5%	65.5%	Westminster Village	42.3%	57.7%
Foulk Manor North	24.2%	75.8%	**Kent County (Private) Total**	**45.1%**	**54.9%**
Foulk Manor South	36.1%	63.9%			
Gilpin Hall	24.3%	75.7%	**Sussex County (Private)**		
Hillside Center	56.3%	43.7%	Atlantic Shores	47.0%	53.0%
Jeanne Jugan Residence	13.0%	87.0%	Cadia Rehab Renaissance	36.3%	63.7%
Kentmere Rehab & Healthcare	34.0%	66.0%	Country Rest Home	34.5%	65.5%
Kutz Rehab & Nursing	31.3%	68.7%	Delmar Nursing & Rehab	39.4%	60.6%
ManorCare Pike Creek	47.1%	52.9%	Harbor Health Care	47.3%	52.7%
ManorCare Wilmington	46.7%	53.3%	Harrison Senior Living	40.1%	59.9%
Millcroft	37.6%	62.4%	Lofland Park Center	39.2%	60.8%
New Castle Health & Rehab	45.3%	54.7%	Milford Center	45.2%	54.8%
Newark Manor	13.3%	86.7%	Polaris Healthcare	33.9%	66.1%
Parkview Nursing & Rehab	43.3%	56.7%	Seaford Center	46.6%	53.4%
Regal Heights Healthcare & Rehab	45.7%	54.3%	The Moorings at Lewes	33.3%	66.7%
Regency Healthcare & Rehab	39.0%	61.0%	WBC Manor House	26.3%	73.7%
Shipley Manor Health Care	37.6%	62.4%	**Sussex County (Private) Total**	**41.1%**	**58.9%**
Stonegates	31.0%	69.0%			
Weston Senior Living Center	71.4%	28.6%	**Total Private Facilities**	**42.4%**	**57.6%**
WBC Cokesbury Village	32.3%	67.7%			
WBC Country House	25.9%	74.1%	**Public Facilities**		
NCC (Private) Total	**42.4%**	**57.6%**	DE Hosp for Chronically Ill	54.3%	45.7%
			Governor Bacon Health Center	11.5%	88.5%
			Public Total	**36.1%**	**63.9%**
			Total All Facilities	**42.4%**	**57.6%**

Note: NCC=New Castle County.

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Table 24
Number of White Discharges by Age, Gender, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
NCC (Private)											
Brackenville Center	7	8	7	32	26	45	24	64	64	149	213
Brandywine Nursing & Rehab	3	3	27	11	18	19	43	57	91	90	181
Cadia Rehab Broadmeadow	10	12	18	33	31	60	36	63	95	168	263
Cadia Rehab Pike Creek	45	63	25	53	42	48	27	55	139	219	358
Cadia Rehab Silverside	11	11	32	30	40	46	25	63	108	150	258
Churchman Village	13	2	7	19	34	25	23	48	77	94	171
Forwood Manor	0	0	6	12	21	33	32	78	59	123	182
Foulk Manor North	0	0	1	1	2	4	5	17	8	22	30
Foulk Manor South	0	0	1	2	0	5	12	15	13	22	35
Gilpin Hall	0	4	1	2	0	1	5	15	6	22	28
Hillside Center	21	12	23	13	16	17	16	10	76	52	128
Jeanne Jugan Residence	0	0	0	2	1	4	2	14	3	20	23
Kentmere Rehab & Healthcare	0	3	10	8	25	27	13	63	48	101	149
Kutz Rehab & Nursing	1	1	5	8	8	17	12	29	26	55	81
ManorCare Pike Creek	44	38	64	71	67	84	75	89	250	282	532
ManorCare Wilmington	22	17	31	38	29	46	34	35	116	136	252
Millcroft	1	0	1	4	11	13	22	44	35	61	96
New Castle Health & Rehab	2	6	7	5	2	3	1	1	12	15	27
Newark Manor	0	0	0	0	0	0	2	10	2	10	12
Parkview Nursing & Rehab	3	4	7	12	21	16	7	23	38	55	93
Regal Heights Healthcare &	0	0	6	10	19	20	18	28	43	58	101
Regency Healthcare & Rehab	1	0	6	7	3	7	5	6	15	20	35
Shipley Manor Health Care	0	0	3	1	15	17	22	52	40	70	110
Stonegates	0	0	1	0	2	10	10	19	13	29	42
Weston Senior Living Center	3	3	0	0	3	0	6	3	12	6	18
WBC Cokesbury Village	0	0	0	0	2	7	17	34	19	41	60
WBC Country House	0	0	0	0	6	20	15	40	21	60	81
NCC (Private) Total	**187**	**187**	**289**	**374**	**444**	**594**	**509**	**975**	**1,429**	**2,130**	**3,559**

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Table 24
(Continued)
Number of White Discharges by Age, Gender, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
Kent County (Private)											
Cadia Rehab Capitol	9	7	9	14	15	26	16	32	49	79	128
Courtland Manor	0	1	0	0	0	2	3	11	3	14	17
Delaware Veterans Home	2	0	3	0	6	0	9	4	20	4	24
Pinnacle Rehab & Health	22	16	24	27	28	25	11	14	85	82	167
Silver Lake Center	17	14	18	18	24	20	11	23	70	75	145
The Center at Eden Hill	12	16	32	57	67	75	56	86	167	234	401
Westminster Village	1	3	9	14	13	16	23	36	46	69	115
Kent County (Private) Total	**63**	**57**	**95**	**130**	**153**	**164**	**129**	**206**	**440**	**557**	**997**
Sussex County (Private)											
Atlantic Shores	31	25	36	38	40	49	36	55	143	167	310
Cadia Rehab Renaissance	6	5	18	33	46	81	39	85	109	204	313
Country Rest Home	0	1	2	1	11	11	7	25	20	38	58
Delmar Nursing & Rehab	1	1	4	5	6	16	8	12	19	34	53
Harbor Health Care	2	2	17	16	19	28	25	33	63	79	142
Harrison Senior Living	5	10	34	43	48	72	39	65	126	190	316
Lofland Park Center	8	18	15	25	28	32	14	34	65	109	174
Milford Center	27	26	29	36	33	47	25	38	114	147	261
Polaris Healthcare	6	4	0	8	7	9	2	14	15	35	50
Seaford Center	19	15	22	29	23	27	6	16	70	87	157
The Moorings at Lewes	0	0	9	4	15	25	13	46	37	75	112
WBC Manor House	0	0	1	4	3	9	21	57	25	70	95
Sussex County (Private) Total	**105**	**107**	**187**	**242**	**279**	**406**	**235**	**480**	**806**	**1,235**	**2,041**
Total Private Facilities	**355**	**351**	**571**	**746**	**876**	**1,164**	**873**	**1,661**	**2,675**	**3,922**	**6,597**
Public Facilities											
DE Hosp for Chronically Ill	3	1	3	1	4	3	1	1	11	6	17
Governor Bacon Health	0	3	2	4	0	4	0	1	2	12	14
Public Total	**3**	**4**	**5**	**5**	**4**	**7**	**1**	**2**	**13**	**18**	**31**
Total All Facilities	**358**	**355**	**576**	**751**	**880**	**1,171**	**874**	**1,663**	**2,688**	**3,940**	**6,628**

Note: NCC=New Castle County.

Table 25

Number of Black Discharges by Age, Gender, Facility Type, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
NCC (Private)											
Brackenville Center	2	1	3	5	1	5	3	7	9	18	27
Brandywine Nursing &	2	1	12	12	12	13	9	18	35	44	79
Cadia Rehab Broadmeadow	4	6	6	9	10	8	9	13	29	36	65
Cadia Rehab Pike Creek	50	31	12	20	10	8	3	16	75	75	150
Cadia Rehab Silverside	13	8	21	21	12	18	5	13	51	60	111
Churchman Village	6	1	0	6	3	9	2	3	11	19	30
Forwood Manor	0	0	0	0	4	6	4	2	8	8	16
Foulk Manor North	0	0	0	0	0	2	0	1	0	3	3
Foulk Manor South	0	0	0	0	0	0	0	1	0	1	1
Gilpin Hall	0	0	0	0	1	0	2	6	3	6	9
Hillside Center	29	26	24	24	22	12	12	17	87	79	166
Jeanne Jugan Residence	0	0	0	0	0	0	0	0	0	0	0
Kentmere Rehab &	4	0	3	6	8	11	10	24	25	41	66
Kutz Rehab & Nursing	0	0	0	0	0	0	0	1	0	1	1
ManorCare Pike Creek	23	21	22	33	24	24	16	12	85	90	175
ManorCare Wilmington	19	19	22	27	10	13	10	17	61	76	137
Millcroft	2	0	1	0	3	4	0	3	6	7	13
New Castle Health & Rehab	5	6	3	7	6	3	2	3	16	19	35
Newark Manor	0	0	0	0	0	2	0	1	0	3	3
Parkview Nursing & Rehab	12	8	14	11	7	16	5	11	38	46	84
Regal Heights Healthcare &	3	2	8	4	7	6	2	4	20	16	36
Regency Healthcare &	9	3	2	16	1	5	0	6	12	30	42
Shipley Manor Health Care	0	0	0	1	2	2	1	0	3	3	6
Stonegates	0	0	0	0	0	0	0	0	0	0	0
Weston Senior Living Center	0	0	0	0	3	0	0	0	3	0	3
WBC Cokesbury Village	0	0	0	0	0	0	0	1	0	1	1
WBC Country House	0	0	0	0	0	0	0	0	0	0	0
NCC (Private) Total	**183**	**133**	**153**	**202**	**146**	**167**	**95**	**180**	**577**	**682**	**1,259**

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Table 25
(Continued)
Number of Black Discharges by Age, Gender, Facility Type, County and Facility, 2020

Nursing Home	<65 Male	< 65 Female	65-74 Male	65-74 Female	75-84 Male	75-84 Female	85+ Male	85+ Female	Total Male	Total Female	Total M+F
Kent County (Private)											
Cadia Rehab Capitol	5	2	12	3	4	4	2	10	23	19	42
Courtland Manor	0	0	1	0	0	0	1	3	2	3	5
Delaware Veterans Home	1	0	0	0	1	0	1	0	3	0	3
Pinnacle Rehab & Health	5	6	20	10	19	10	1	3	45	29	74
Silver Lake Center	17	13	9	4	11	8	7	10	44	35	79
The Center at Eden Hill	4	10	8	23	12	29	4	9	28	71	99
Westminster Village	1	2	6	2	6	3	1	1	14	8	22
Kent County (Private) Total	**33**	**33**	**56**	**42**	**53**	**54**	**17**	**36**	**159**	**165**	**324**
Sussex County (Private)											
Atlantic Shores	3	5	7	6	4	1	5	7	19	19	38
Cadia Rehab Renaissance	1	2	0	2	8	3	5	9	14	16	30
Country Rest Home	0	0	0	0	0	0	0	0	0	0	0
Delmar Nursing & Rehab	1	0	3	1	3	5	2	2	9	8	17
Harbor Health Care	4	2	5	0	4	4	2	1	15	7	22
Harrison Senior Living	0	3	8	1	5	3	0	10	13	17	30
Lofland Park Center	3	4	4	6	1	3	4	2	12	15	27
Milford Center	15	18	9	5	6	11	3	1	33	35	68
Polaris Healthcare	0	0	4	0	0	0	0	2	4	2	6
Seaford Center	14	9	6	8	4	3	0	1	24	21	45
The Moorings at Lewes	0	0	0	0	1	0	0	1	1	1	2
WBC Manor House	0	0	0	0	0	0	0	0	0	0	0
Sussex County (Private) Total	**41**	**43**	**46**	**29**	**36**	**33**	**21**	**36**	**144**	**141**	**285**
Total Private Facilities	**257**	**209**	**255**	**273**	**235**	**254**	**133**	**252**	**880**	**988**	**1,868**
Public Facilities											
DE Hosp for Chronically Ill	0	4	4	1	4	1	0	3	8	9	17
Governor Bacon Health Center	1	4	0	2	0	1	0	3	1	10	11
Public Total	**1**	**8**	**4**	**3**	**4**	**2**	**0**	**6**	**9**	**19**	**28**
Total All Facilities	**258**	**217**	**259**	**276**	**239**	**256**	**133**	**258**	**889**	**1,007**	**1,896**

Note: NCC=New Castle County.

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Table 26
Number of Discharges by Disposition, Facility Type, County and Facility Name, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Death	Other	Total
NCC (Private)								
Brackenville Center	114	39	18	3	1	64	11	250
Brandywine Nursing & Rehab	22	185	9	0	0	60	0	276
Cadia Rehab Broadmeadow	204	88	8	14	2	18	1	335
Cadia Rehab Pike Creek	354	157	17	5	0	12	0	545
Cadia Rehab Silverside	305	42	8	7	0	30	0	392
Churchman Village	161	18	4	1	0	22	0	206
Forwood Manor	128	30	18	2	0	22	0	200
Foulk Manor North	8	0	1	3	0	20	1	33
Foulk Manor South	6	5	3	4	1	17	0	36
Gilpin Hall	0	6	3	3	0	25	0	37
Hillside Center	200	80	1	6	0	15	0	302
Jeanne Jugan Residence	5	0	0	0	0	18	0	23
Kentmere Rehab & Healthcare	114	52	13	2	0	32	2	215
Kutz Rehab & Nursing	19	25	3	2	0	33	1	83
ManorCare Pike Creek	427	200	25	18	0	61	0	731
ManorCare Wilmington	246	73	25	10	0	50	1	405
Millcroft	39	34	13	2	0	20	1	109
New Castle Health & Rehab	16	43	0	2	0	1	2	64
Newark Manor	0	0	2	0	0	13	0	15
Parkview Nursing & Rehab	75	37	3	2	0	61	2	180
Regal Heights Healthcare & Rehab	68	33	3	0	0	36	0	140
Regency Healthcare & Rehab	28	45	0	1	0	8	0	82
Shipley Manor Health Care	42	22	7	14	0	25	7	117
Stonegates	18	5	0	0	0	19	0	42
Weston Senior Living Center	6	12	0	0	0	3	0	21
WBC Cokesbury Village	20	6	10	2	0	24	0	62
WBC Country House	4	16	0	2	0	28	31	81
NCC (Private) Total	**2,629**	**1,253**	**194**	**105**	**4**	**737**	**60**	**4,982**

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Table 26
(Continued)
Number of Discharges by Disposition, Facility Type, County and Facility Name, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Death	Other	Total
Kent County (Private)								
Cadia Rehab Capitol	93	20	4	11	0	42	1	171
Courtland Manor	6	1	0	1	0	14	0	22
Delaware Veterans Home	1	1	0	0	0	25	0	27
Pinnacle Rehab & Health	83	106	2	12	0	40	6	249
Silver Lake Center	98	78	4	12	0	36	0	228
The Center at Eden Hill	372	99	26	5	7	4	0	513
Westminster Village	64	21	17	3	0	29	8	142
Kent County (Private) Total	**717**	**326**	**53**	**44**	**7**	**190**	**15**	**1,352**
Sussex County (Private)								
Atlantic Shores	156	134	12	8	0	43	0	353
Cadia Rehab Renaissance	214	76	1	19	0	43	0	353
Country Rest Home	4	6	4	0	3	41	0	58
Delmar Nursing & Rehab	26	7	1	2	0	35	0	71
Harbor Health Care	79	31	4	0	0	53	0	167
Harrison Senior Living	160	102	8	0	1	73	3	347
Lofland Park Center	119	28	3	6	2	45	1	204
Milford Center	171	62	0	29	1	68	10	341
Polaris Healthcare	40	11	1	0	0	3	1	56
Seaford Center	120	42	1	22	0	19	0	204
The Moorings at Lewes	69	14	9	1	0	20	1	114
WBC Manor House	27	14	19	3	1	31	0	95
Sussex County (Private) Total	**1,185**	**527**	**63**	**90**	**8**	**474**	**16**	**2,363**
Total Private Facilities	**4,531**	**2,106**	**310**	**239**	**19**	**1,401**	**91**	**8,697**
Public Facilities								
DE Hosp for Chronically Ill	0	8	0	0	0	27	0	35
Governor Bacon Health Center	0	0	0	1	22	3	0	26
Public Total	**0**	**8**	**0**	**1**	**22**	**30**	**0**	**61**
Total All Facilities	**4,531**	**2,114**	**310**	**240**	**41**	**1,431**	**91**	**8,758**

Note: NCC=New Castle County.

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Table 27
Percentage of Discharges by Disposition, Facility Type, County and Facility Name, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Death	Other	Total
NCC (Private)								
Brackenville Center	45.6%	15.6%	7.2%	1.2%	0.4%	25.6%	4.4%	100.0%
Brandywine Nursing & Rehab	8.0%	67.0%	3.3%	0.0%	0.0%	21.7%	0.0%	100.0%
Cadia Rehab Broadmeadow	60.9%	26.3%	2.4%	4.2%	0.6%	5.4%	0.3%	100.0%
Cadia Rehab Pike Creek	65.0%	28.8%	3.1%	0.9%	0.0%	2.2%	0.0%	100.0%
Cadia Rehab Silverside	77.8%	10.7%	2.0%	1.8%	0.0%	7.7%	0.0%	100.0%
Churchman Village	78.2%	8.7%	1.9%	0.5%	0.0%	10.7%	0.0%	100.0%
Forwood Manor	64.0%	15.0%	9.0%	1.0%	0.0%	11.0%	0.0%	100.0%
Foulk Manor North	24.2%	0.0%	3.0%	9.1%	0.0%	60.6%	3.0%	100.0%
Foulk Manor South	16.7%	13.9%	8.3%	11.1%	2.8%	47.2%	0.0%	100.0%
Gilpin Hall	0.0%	16.2%	8.1%	8.1%	0.0%	67.6%	0.0%	100.0%
Hillside Center	66.2%	26.5%	0.3%	2.0%	0.0%	5.0%	0.0%	100.0%
Jeanne Jugan Residence	21.7%	0.0%	0.0%	0.0%	0.0%	78.3%	0.0%	100.0%
Kentmere Rehab & Healthcare	53.0%	24.2%	6.0%	0.9%	0.0%	14.9%	0.9%	100.0%
Kutz Rehab & Nursing	22.9%	30.1%	3.6%	2.4%	0.0%	39.8%	1.2%	100.0%
ManorCare Pike Creek	58.4%	27.4%	3.4%	2.5%	0.0%	8.3%	0.0%	100.0%
ManorCare Wilmington	60.7%	18.0%	6.2%	2.5%	0.0%	12.3%	0.2%	100.0%
Millcroft	35.8%	31.2%	11.9%	1.8%	0.0%	18.3%	0.9%	100.0%
New Castle Health & Rehab	25.0%	67.2%	0.0%	3.1%	0.0%	1.6%	3.1%	100.0%
Newark Manor	0.0%	0.0%	13.3%	0.0%	0.0%	86.7%	0.0%	100.0%
Parkview Nursing & Rehab	41.7%	20.6%	1.7%	1.1%	0.0%	33.9%	1.1%	100.0%
Regal Heights Healthcare &	48.6%	23.6%	2.1%	0.0%	0.0%	25.7%	0.0%	100.0%
Regency Healthcare & Rehab	34.1%	54.9%	0.0%	1.2%	0.0%	9.8%	0.0%	100.0%
Shipley Manor Health Care	35.9%	18.8%	6.0%	12.0%	0.0%	21.4%	6.0%	100.0%
Stonegates	42.9%	11.9%	0.0%	0.0%	0.0%	45.2%	0.0%	100.0%
Weston Senior Living Center	28.6%	57.1%	0.0%	0.0%	0.0%	14.3%	0.0%	100.0%
WBC Cokesbury Village	32.3%	9.7%	16.1%	3.2%	0.0%	38.7%	0.0%	100.0%
WBC Country House	4.9%	19.8%	0.0%	2.5%	0.0%	34.6%	38.3%	100.0%
NCC (Private) Total	**52.8%**	**25.2%**	**3.9%**	**2.1%**	**0.1%**	**14.8%**	**1.2%**	**100.0%**

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Table 27
(Continued)
Percentage of Discharges by Disposition, Facility Type, County and Facility Name, 2020

Nursing Home	Own or Relative's Home	Hospital	Assisted Living	Private LTCF	State Owned LTCF	Death	Other	Total
Kent County (Private)								
Cadia Rehab Capitol	54.4%	11.7%	2.3%	6.4%	0.0%	24.6%	0.6%	100.0%
Courtland Manor	27.3%	4.5%	0.0%	4.5%	0.0%	63.6%	0.0%	100.0%
Delaware Veterans Home	3.7%	3.7%	0.0%	0.0%	0.0%	92.6%	0.0%	100.0%
Pinnacle Rehab & Health	33.3%	42.6%	0.8%	4.8%	0.0%	16.1%	2.4%	100.0%
Silver Lake Center	43.0%	34.2%	1.8%	5.3%	0.0%	15.8%	0.0%	100.0%
The Center at Eden Hill	72.5%	19.3%	5.1%	1.0%	1.4%	0.8%	0.0%	100.0%
Westminster Village	45.1%	14.8%	12.0%	2.1%	0.0%	20.4%	5.6%	100.0%
Kent County (Private) Total	**53.0%**	**24.1%**	**3.9%**	**3.3%**	**0.5%**	**14.1%**	**1.1%**	**100.0%**
Sussex County (Private)								
Atlantic Shores	44.2%	38.0%	3.4%	2.3%	0.0%	12.2%	0.0%	100.0%
Cadia Rehab Renaissance	60.6%	21.5%	0.3%	5.4%	0.0%	12.2%	0.0%	100.0%
Country Rest Home	6.9%	10.3%	6.9%	0.0%	5.2%	70.7%	0.0%	100.0%
Delmar Nursing & Rehab	36.6%	9.9%	1.4%	2.8%	0.0%	49.3%	0.0%	100.0%
Harbor Health Care	47.3%	18.6%	2.4%	0.0%	0.0%	31.7%	0.0%	100.0%
Harrison Senior Living	46.1%	29.4%	2.3%	0.0%	0.3%	21.0%	0.9%	100.0%
Lofland Park Center	58.3%	13.7%	1.5%	2.9%	1.0%	22.1%	0.5%	100.0%
Milford Center	50.1%	18.2%	0.0%	8.5%	0.3%	19.9%	2.9%	100.0%
Polaris Healthcare	71.4%	19.6%	1.8%	0.0%	0.0%	5.4%	1.8%	100.0%
Seaford Center	58.8%	20.6%	0.5%	10.8%	0.0%	9.3%	0.0%	100.0%
The Moorings at Lewes	60.5%	12.3%	7.9%	0.9%	0.0%	17.5%	0.9%	100.0%
WBC Manor House	28.4%	14.7%	20.0%	3.2%	1.1%	32.6%	0.0%	100.0%
Sussex County (Private) Total	**50.1%**	**22.3%**	**2.7%**	**3.8%**	**0.3%**	**20.1%**	**0.7%**	**100.0%**
Total Private Facilities	**52.1%**	**24.2%**	**3.6%**	**2.7%**	**0.2%**	**16.1%**	**1.0%**	**100.0%**
Public Facilities								
DE Hosp for Chronically Ill	0.0%	22.9%	0.0%	0.0%	0.0%	77.1%	0.0%	100.0%
Governor Bacon Health Center	0.0%	0.0%	0.0%	3.8%	84.6%	11.5%	0.0%	100.0%
Public Total	**0.0%**	**13.1%**	**0.0%**	**1.6%**	**36.1%**	**49.2%**	**0.0%**	**100.0%**
Total All Facilities	**51.7%**	**24.1%**	**3.5%**	**2.7%**	**0.5%**	**16.3%**	**1.0%**	**100.0%**

Note: NCC=New Castle County.

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APPENDIX A: 2020 NURSING HOME TRENDS AMONG THE UNDER 65 POPULATION

In 2020, the DHCC began collecting cohort-specific admissions, discharge, and billable patient days data on the Under 65 nursing home patient population. Prior to 2019, data pertaining to this cohort were consolidated in an Under 65 category. Beginning in 2019, Delaware nursing homes report monthly utilization data for the following Under 65 categories: ages 18-34, ages 35-44, ages 45-54, and ages 55-64. The DHCC uses these data to track age-specific nursing home metrics among younger populations.

Tables A1 and A2 include 2020 admissions and discharge data among sub-cohorts in the Under 65 population. Patients under the age of 65 accounted for 1,285 nursing home admissions (15.6%) and 1,225 nursing home discharges (14.0%). Males accounted for 54.1% of admissions and 52.5% of discharges among the Under 65 population in 2020. White patients accounted for 61.1% of admissions and 58.2% of discharges among the Under 65 population. The number of admissions and discharges among the Under 65 population increased with age across the 18-34, 35-44, 45-54, and 55-64 age groups. The majority (37 of 48; 77.1%) of Delaware nursing homes admitted at least one patient under the age of 65 in 2020. Eight Delaware nursing homes (16.7%) admitted at least one patient ages 18-34 in 2020.

Table A1: Delaware Nursing Home Admissions among the Under 65 Patient Population, by Sex, Race, and Facility Type, and County, 2020

	Under 65: Age Cohort				
	18-34 yrs.	35-44 yrs.	45-54 yrs.	55-64 yrs.	Total
Sex					
Male	18 (2.6%)	53 (7.6%)	112 (16.1%)	512 (73.7%)	695 (100.0%)
Female	4 (0.7%)	21 (3.6%)	107 (18.1%)	458 (77.6%)	590 (100.0%)
Race					
White	4 (0.5%)	45 (5.7%)	137 (17.5%)	599 (76.3%)	785 (100.0%)
Black	14 (3.1%)	25 (5.5%)	74 (16.3%)	342 (75.2%)	455 (100.0%)
Other	4 (8.9%)	4 (8.9%)	8 (17.8%)	29 (64.4%)	45 (100.0%)
Facility Type and County					
Private Facilities					
New Castle	16 (2.1%)	57 (7.5%)	130 (17.0%)	561 (73.4%)	764 (100.0%)
Kent	3 (1.4%)	4 (1.9%)	33 (15.3%)	175 (81.4%)	215 (100.0%)
Sussex	3 (1.0%)	13 (4.2%)	64 (20.9%)	226 (73.9%)	306 (100.0%)
Public Facilities	0 (0.0%)	0 (0.0%)	2 (20.0%)	8 (80.0%)	10 (100.0%)
Total Admissions Under 65	**22 (1.7%)**	**74 (5.8%)**	**219 (17.0%)**	**970 (75.5%)**	**1,285 (100.0%)**

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Table A2: Delaware Nursing Home Discharges among the Under 65 Patient Population, by Sex, Race, and Facility Type, and County, 2020

	Under 65: Age Cohort				
	18-34 yrs.	35-44 yrs.	45-54 yrs.	55-64 yrs.	Total
Sex					
Male	21 (3.3%)	42 (6.5%)	109 (17.0%)	471 (73.3%)	643 (100.0%)
Female	6 (1.0%)	26 (4.5%)	114 (19.6%)	436 (74.9%)	582 (100.0%)
Race					
White	7 (1.0%)	39 (5.5%)	138 (19.4%)	529 (74.2%)	713 (100.0%)
Black	17 (3.6%)	27 (5.7%)	76 (16.0%)	355 (74.7%)	475 (100.0%)
Other	3 (8.1%)	2 (5.4%)	9 (24.3%)	23 (62.2%)	37 (100.0%)
Facility Type and County					
Private Facilities					
New Castle	17 (2.4%)	48 (6.7%)	124 (17.2%)	531 (73.8%)	720 (100.0%)
Kent	2 (1.0%)	6 (3.1%)	22 (11.5%)	162 (84.4%)	192 (100.0%)
Sussex	8 (2.7%)	14 (4.7%)	72 (24.2%)	203 (68.4%)	297 (100.0%)
Public Facilities	0 (0.0%)	0 (0.0%)	5 (31.3%)	11 (68.8%)	16 (100.0%)
Total Discharges Under 65	**27 (2.2%)**	**68 (5.6%)**	**223 (18.2%)**	**907 (74.0%)**	**1,225 (100.0%)**

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State: Half of Delaware coronavirus deaths related to nursing homes

Meredith Newman
Delaware News Journal

Published 4:25 p.m. ET March 31, 2020 | **Updated 6:57 p.m. ET March 31, 2020**

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Half of the coronavirus deaths in Delaware have been related to long-term nursing home facilities, health officials said Tuesday.

Since Thursday, March 26, three Delaware long-term care facilities have announced confirmed cases of COVID-19 — Brandywine Living at Seaside Pointe near Rehoboth Beach, HarborChase in Talleyville and Little Sisters of the Poor Jeanne Jugan Residence in Ogletown.

Across the nation, long-term care facilities have become hotbeds for the virus.

A second and third resident of Little Sisters of the Poor have died from complications of the coronavirus, state officials said. WDEL reported this early Tuesday afternoon.

A spokeswoman for Little Sisters of the Poor could not be immediately reached for comment.

Last week, officials announced that an 86-year-old man who lived at the Jeanne Jugan Residence died due to complications of the coronavirus. Six others had been infected with the virus, several of whom had been hospitalized, health officials said at the time.

READ: Carney: Delaware could see 3,000 coronavirus cases, 500 hospitalizations in coming weeks

Six residents at a memory care unit at HarborChase also tested positive for COVID-19. Many of these residents have been hospitalized.

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A resident at Brandywine Living died from the coronavirus on Sunday. The person was in their 90s and had severe underlying health conditions, said Donna Winegar, executive director of Brandywine Living.

READ: ChristianaCare employees test positive for COVID-19; hospital won't say how many

Gov. John Carney said Monday he has a "quite a bit of concern" that nursing homes and assisted living facilities haven't been doing enough to prepare for the coronavirus and protect patients and workers.

As of 4 p.m. on Tuesday, March 31, state health officials had confirmed 319 cases of the coronavirus and 10 deaths.

Contact Meredith Newman at (302) 324-2386 or at mnewman@delawareonline.com. Follow her on Twitter at @merenewman.

wbur

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Nursing Homes Account For 60% Of COVID-19 Deaths In Mass.

May 03, 2020 | By [The Associated Press](#)

This article is more than 3 years old.

Long-term care facilities in Massachusetts accounted for nearly 60% of all coronavirus-related deaths in the state, one of the highest publicly reported rates in the country.

Citing data from the Kaiser Family Foundation, The Boston Globe reports Rhode Island appears to have the highest rate in the nation, at about 71%, followed by Massachusetts.

About 41,000 people are living in nursing and rest homes in Massachusetts.

"If you have someone in the nursing home, you are just holding your breath," said Elizabeth Dugan, associate professor of gerontology at the University of Massachusetts Boston.

State data shows that at least 67% of the state's 476 long-term care facilities have reported infections.

Once the virus was found in nursing homes, many staff members stayed home due to illness or fear and facilities reported inadequate supplies of personal protective equipment. A shortage of tests for patients and workers made it difficult to gauge the presence of the virus.

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The state's COVID-19 Response Command Center said in a statement that nursing home patients and staff are now required to be tested.

The state said that as of Saturday, the National Guard has administered more than 28,000 tests at 525 care facilities.

Novel Coronavirus   Coronavirus Liveblog

Related:

- COVID-19 Hits Elder Care Facilities In Mass. The Hardest, With More Than 1,300 Now Dead
- For Nursing Homes Battling COVID-19, Baker Says State Will Deploy Emergency Team Of Nurses, Another $130 Million
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Nursing home quality, COVID-19 deaths, and excess mortality

Christopher J. Cronin[a] and William N. Evans[b,*]

Abstract

The COVID-19 pandemic in the US has been particularly devastating for nursing home residents. A key question is how have some nursing homes been able to effectively protect their residents, while others have not? Using data on the universe of US nursing homes, we examine whether establishment quality is predictive of COVID-19 mortality. Higher-quality nursing homes, as measured by CMS overall five-star rating, have substantially lower COVID-19 mortality through September of 2020. Quality does not predict the ability to prevent any COVID-19 resident or staff cases, but higher-quality establishments prevent the spread of resident infections conditional on having one. Preventing COVID-19 cases and deaths may come at some cost, as high-quality homes have substantially higher non-COVID deaths. The positive correlation between establishment quality and non-COVID mortality is strong enough that high-quality homes also have more total deaths than their low-quality counterparts and this relationship has grown with time. As of late April 2021, five-star homes have experienced 8.4 percent more total deaths than one-star homes.

I.   Introduction

The COVID-19 pandemic in the US has been particularly devastating for residents of nursing homes. As of August 15th, 2021, there were a total of 634,179 COVID-19-related deaths in the US.[1] We estimate that 21 percent of these deaths are among nursing home residents.[2] Through the end of 2020, the death rate for non-nursing home residents was about 87 per 100,000. The death rate for nursing home residents is more than 108 times that number at roughly 9200 per 100,0 death rate in nursing homes is more 23 times larger than the death rate for those 65 and o

outside of nursing homes, which we calculate to be about 390 per 100,000. In at least five states, Rhode Island, Indiana, New Jersey, South Dakota, and Connecticut, more than 12 percent of the nursing home population at the beginning of 2020 had died by the end of the year with COVID-19.

COVID-19 deaths among nursing home patients is heavily influenced by infection and transmission rates in the surrounding community, which varies substantially by region. For example, cumulative non-nursing home COVID-19 deaths rates at the end of 2020 varied from a low of 8 per 100,000 in Vermont to a high of 159 per 100,000 in New Jersey. Yet, community risk alone cannot explain the vast variation in nursing home death rates. Even in the five states mentioned above with the highest nursing home death rates, 17 percent of homes had not experienced a single COVID-19 mortality by the end of 2020. A key research question is then how have some nursing homes been able to effectively protect their residents, while others have not?

In this work, we focus on one particular dimension of the problem: nursing home quality. Starting in 2008, the Centers for Medicare and Medicaid (CMS) began providing a "five-star" rating of nursing home quality based on three elements: health inspections, staff-to-resident ratios, and quality metrics such as rates of falls and bedsores, with the first element having the greatest weight in an "overall" rating. We merge this quality data with data on COVID-19 cases and mortality that is reported weekly by nursing homes to CMS starting the week ending May 24th, 2020. In count-data models that control for local risk factors and nursing home characteristics, we find that the overall rating is highly predictive of mortality, with five-star homes having 15 percent fewer resident COVID-19 deaths by September 13th, 2020 than one-star homes. We find no such relationship between home quality and COVID-19 deaths after September of 2020.

We identify several mechanisms through which quality nursing homes lowered mortality. First, we show that the chance of having any COVID-19 cases among residents or staff is not explained by nursing home quality, meaning even high-quality homes were unable to prevent COVID-19 from entering their facility. That said, in models that condition on having at least one confirmed case, we show that higher-quality nursing homes more successfully prevented the spread of the disease among residents. Unfortunately, we do not have detailed data on the policies and procedures that enabled these establishments to prevent the spread of the disease. We do show that higher-quality homes experienced fewer staff shortages, which may have helped with patient monitoring and isolation, and somewhat weaker evidence of fewer personal protective equipment (PPE) outages. Furthermore, we show that high-quality homes tested residents and staff more frequently and received test results faster than low-quality homes. Consistent with high-quality homes simply following CMS guidelines more closely, we also show that once vaccines were made available, high-quality homes vaccinated residents and staff at a higher rate.

A likely scenario is that higher-quality establishments also did a better job of isolating residents from risks associated with both outside visitors and other residents. On March 13th, 2020, CMS recommended that nursing homes (i) restrict visitors and non-essential personnel from entering the home and (ii) cancel in-person dining and other group activities (CMS, 2020a).[3] These precautions very well may have prevented deaths from COVID-19, but many have questioned whether those gains came at a cost. An abundance of qualitative evidence from nursing home staff, administrators, and resident family members suggests that the lack of in-person contact with loved ones

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and other residents not only generated feelings of loneliness, isolation, and despair, but may have also expedited death (Aronson, 2020; Paulin, 2020; Graham, 2020). A nationwide survey of nursing home residents by Altarum, a non-profit healthcare company, documents similar concerns (Montgomery et al., 2020). Existing research shows that social isolation increases both dementia severity and the likelihood of adverse outcomes among those with Alzheimer's (Dyer et al., 2020) and mortality among the elderly (Steptoe et al., 2013). According to CDC provisional data, there were 56,464 excess deaths (i.e., realized deaths above that which is predicted using historical averages) among Alzheimer's patients through early October of 2021;[4] however, only 22,709 or 40 percent had a corresponding positive COVID-19 diagnosis,[5] leaving 60 percent of these excess deaths not directly related to the disease but to other aspects of the pandemic.[6]

To investigate this claim, we return to our original model, but change the dependent variable from COVID-19 deaths to non-COVID deaths. We find that higher-quality nursing homes have much higher non-COVID mortality. In particular, as of September 13th, 2020, five-star homes had experienced 11.4 percent more non-COVID deaths than one-star homes, all else equal; by April 15, 2021, this figure had grown to nearly 15 percent. Research by Levere et al. (2020) suggests that these excess deaths likely resulted from isolation and loneliness. Using resident-level assessment data from Connecticut nursing homes, the authors document substantial weight loss and increases in severe pressure ulcers among residents who did *not* contract COVID-19. The resident survey mentioned above also documents severe isolation, finding that only 5 percent of respondents had visitors three or more times per week, compared to 56 percent before the pandemic, and just 13 percent reported dining in a communal setting, compared to 69 percent before the pandemic. Another possibly is that resident contact restrictions may coincide with, or even cause, a reduction in interactions with healthcare providers, both inside and outside the home, which would be consistent with widely documented reductions in healthcare receipt overall during the early stages of the pandemic (Bosworth et al., 2020; Ziedan et al., 2020; Cantor et al., 2020; Clemens et al., 2021).

An alternative explanation of our findings is that there is incomplete reporting of COVID-19 or strategic use of defining COVID-19 deaths by nursing homes to mitigate the damage to their reputation from the CMS reports. To investigate this, in Fig. 1 we report weekly deaths in nursing homes as reported to CMS from the end of May 2020 through June of 2021. Were deaths misreported, we would expect spikes in non-COVID deaths during the summer and winter waves of 2020. Such spikes are not present in the data. Moreover, when we eliminate deaths prior to June of 2020, when misreporting is most likely, our results are unaffected. Another plausible explanation of our findings is "harvesting"; i.e., low-quality homes experience fewer non-COVID deaths because the most fragile residents die from COVID-19. To test this theory, we estimate the impact of nursing home quality on *total* deaths. We find that between January 1st, 2020 and April 25th, 2021, five-star homes experienced 8.4 percent more total deaths than one-star homes, an average difference of 2.7 lives.
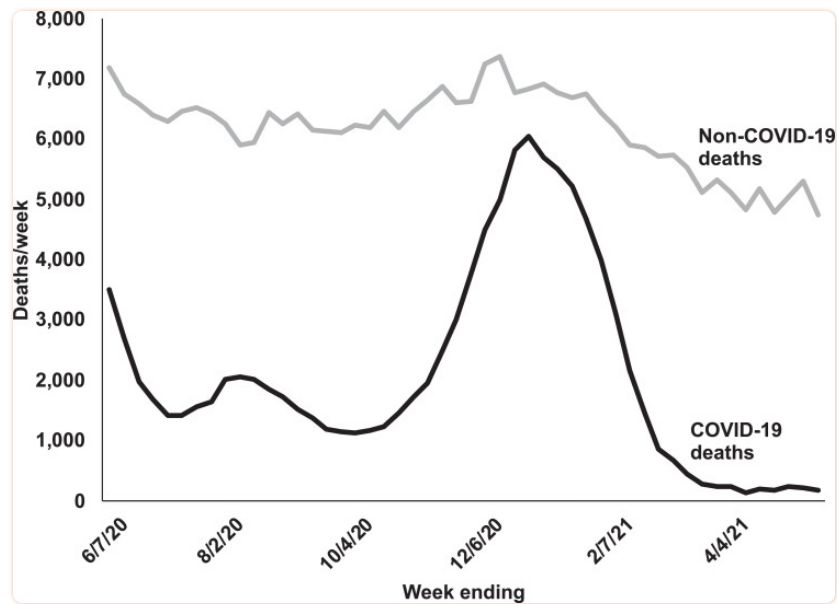
[Fig. 1](#)

Deaths by Week Among Nursing Home Residents, May 31st, 2020 through May 9th, 2021

This figure reports the total number of nursing home resident deaths in the US by week, from May 31st, 2020 to May 9th, 2021. Total deaths have been decomposed into those related to COVID-19 or not. Weekly deaths are calculated using the CMS COVID-19 nursing home surveillance survey described in [Section II.A](#) .

Given the number of COVID-19-related deaths and an early understanding that the elderly die at higher rates, there is surprisingly little research on deaths in nursing homes. As a result, this paper contributes to the literature on the health effects of COVID-19 along several dimensions. A number of papers have examined the general relationship between CMS five-star ratings and COVID-19 cases and/or deaths in nursing homes but much of this work was either in a single state ([Bui et al., 2020](#); [Harrington et al., 2020](#); [He et al., 2020](#); [Li et al., 2020a](#)) or occurred very early in the pandemic ([Abrams et al., 2020](#)). Some studies have used various versions of the CMS data used in this study. [Gorges and Konetzka (2020)](#) show that county incidence rates are the strongest predictor of resident mortality and staff levels have modest impacts on the spread of the disease. [Li et al. (2020b)](#) document much higher COVID-19 death rates in homes with a larger share of minority patients. [Chen et al. (2021)](#) show that contractors that service multiple nursing homes in a local area helped spread the disease. The data from the CDC showing large excess death rates for the elderly and especially Alzheimer's patients has helped put this issue into the public discussion, yet there is little research other than efforts to document the extent of the problem and almost no research on the factors that lead to excess mortality.

While much of the previous work studies determinants of outbreaks, only a few studies such as ([Li, Cen, Cai and Temkin-Greener, 2020b](#)) and [Gorges and Konetzka (2020)](#) consider mortality in a nationwide sample as we do. Moreover, we identify that the home quality/COVID-19 death relationship is most likely explained by high-quality homes reducing the spread of the virus once it en-

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ters the home and it is not due to a home's ability to prevent the entry of the disease. Importantly, our paper is the first to establish a negative link between nursing home quality and non-COVID mortality. This relationship is so pronounced that high-quality nursing homes are found to have significantly higher *total* mortality than low-quality homes.

The COVID-19 pandemic presented an almost unprecedented challenge for nursing homes. In response to CMS directives and various state regulations, it is without question that the pandemic made nursing homes much lonelier places to live. In this paper, we show that the highest quality nursing homes have witnessed the greatest amount of death during the pandemic. The means by which quality is measured may be important to understanding this finding. Inputs to the CMS five-star rating measure a nursing home's ability to abide by pre-determined guidelines (e.g., staffing ratios) and minimize objectively bad health outcomes (e.g., bed sores). In light of this, it is not clear that homes of high quality, as it is traditionally measured, should fare well in a highly uncertain environment where guidelines from the centralized authority (i.e., CMS), as well as public opinion, attach extraordinary weight to preventing a single bad outcome; namely, COVID-19 cases and deaths. This paper provides a clear example of high-quality homes *underperforming* in such an environment.[7] We offer two takeaways.

First, an organization's capacity to perform well in the face of adversity may be an important dimension of its quality. Such capacity is difficult to measure across organizations because adversity may not be observable and is rarely evenly distributed. The COVID-19 pandemic offers CMS an observable shock that affected all nursing homes. CMS should consider capitalizing on this opportunity by evaluating nursing home responses to the COVID-19 shock and integrating this evaluation into their quality metrics.

Second, through September of 2020, CMS guidelines clearly prioritized reducing nursing home resident exposure to COVID-19. Guidelines focused on proper PPE use, testing protocols, and isolating residents from the outside world and one another. COVID-19 cases and deaths were publicized and widely reported in the news media. Our results suggest that in response, the best nursing homes "hit their marks," i.e., they followed guidelines and, for a time, avoided the bad health outcome of focus. That said, we show that these homes witnessed the most total death in the long-run. In the future, we hope that these findings serve as a reminder that even early guidelines and objective health metrics should be cognizant of resident wellbeing at large.

II. Data

II.A. Data sources and reporting accuracy

Our primary data source is a weekly data set released by CMS that has COVID-19 surveillance information by nursing home. On May 8th, 2020, CMS released a final ruling that required nursing homes to report confirmed and suspected COVID-19 cases of residents and staff to both the residents and their representatives. The ruling also required that nursing homes report weekly totals of surveillance items to the Centers for Disease Control (CDC) National Healthcare Safety Network,

starting with the week ending May 24th, 2020. Reporting was mandatory with a $1000 fine issued after four-weeks of non-reporting. Thereafter, fines increased by $500 for each week of non-reporting (CMS, 2020c).

The first weekly file was released by CMS in early June and updates are released on Thursdays, 11 days after the end of the Monday to Sunday reporting period. The initial release of this data set was in a word, messy. There were obvious key-punch errors and variables were frequently reported in the wrong columns. Subsequent releases of the data corrected many of these recording errors and the most recent releases of the data are relatively free from these obvious errors, although some naturally exist. Reporting has always been high. In the first release of the data, 13,162 nursing homes were included and 97 percent passed a data quality assurance check. In the following few weeks, many homes missing the original deadline submitted both current and historic data. The number of homes reporting in a single week peaks at 15,330 for the week ending September 20th, 2020, and 98 percent passed a data quality assurance check. The number never dips below 15,167 after that. Based on the size of the CMS five-star data set, this represents 97 to 98 percent of all nursing homes.

The CMS nursing home data reports weekly and cumulative (since January 1st, 2020) values for confirmed COVID-19 cases for residents and staff, suspected cases for these two groups, and COVID-19 deaths (which includes suspected and confirmed), plus all deaths, among residents. Deaths are reported regardless of the location, so if a nursing home resident is moved to a hospital and dies there, the death is counted as a nursing home resident death. The survey asks nursing homes if they have shortages of key staff including nursing staff, clinical staff, and aids, and whether they have adequate supplies of specific PPE such as N95 masks, surgical masks, gowns, etc. From August 16th through November 22nd (2020), the survey asks a series of questions about COVID-19 testing procedures. Not until late May of 2021 did the survey ask about resident and staff vaccinations.

The CMS nursing home data has an important limitation. At the time of the first report (May 24th, 2020), CMS allowed nursing homes the choice to report cases and deaths from the prior week *or* cumulative cases and deaths since January 1st. Thereafter, homes report weekly counts and a cumulative count is calculated by CMS; thus, if a home fails to report the cumulative count since January 1st on May 24th, the cumulative count that CMS calculates in future weeks is too small. In Appendix Section B, we compare CMS nursing home death counts to those from the COVID-19 Tracking Project, which measures COVID-19 deaths in nursing homes at the state level in 37 states. We calculate that the initial undercount is about 15%. In contrast, the change in COVID-19 deaths between May 24th, 2020 and other dates as reported by these two sources differs by less than 4 percent. In our robustness analysis, we re-estimate our main model using cases and deaths since May 24th, which appears to be more accurately reported across the two samples.

Using these two data sources, we estimate total nursing home COVID-19 deaths in the nation as of August 15, 2021 to be 137,318, which is 21 percent of aggregate mortality (see Table A1 and associated discussion in the Appendix Section B).

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The staggering consequences of the pandemic for nursing home residents can be seen when we calculate COVID-19 death rates for residents and compare to the general population through the end of 2020.[8] The death rate (per 100,000 people) for non-nursing home residents is roughly 87. Dividing imputed COVID-19 deaths by the number of nursing home residents alive at the beginning of 2020,[9] the death rate for nursing home residents is about 9200, or about 108 times the rate for the general population. We calculate that the COVID-19 death rate for people 65 and over living outside of nursing homes is 390,[10] meaning the nursing home death rate is about 24 times this number.

II.B. Heterogeneity across nursing homes in COVID-19 mortality

There is tremendous variation across states in the severity with which the pandemic struck nursing homes. Using the CMS data as of the last week of 2020, deaths per 1000 nursing home residents varied from a low of 12.8 in Alaska to a high of 134 in Rhode Island (see Appendix Fig. A3). In the 14 states with the highest death rates, more than 10 percent of the nursing home population died from COVID-19 in 2020.
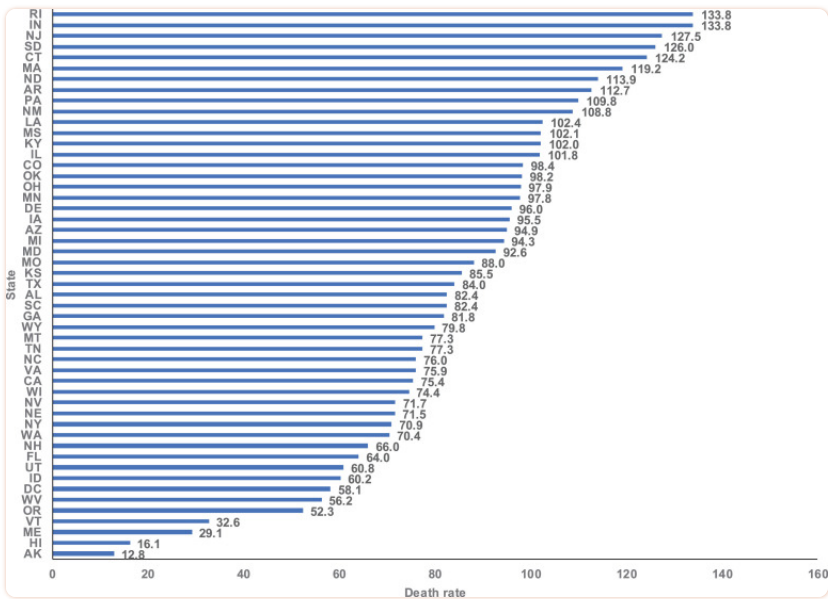
Fig. A3

COVID-19 Deaths Rates (deaths/1000) in Nursing Homes, as of End of 2020

Information taken from CMS COVID-19 surveillance data discussed in Section II.A.

The risk nursing home residents face from the disease is strongly correlated with the underlying risk in their state. The correlation coefficient between the non-nursing home COVID-19 death rate at the state level and the same value for nursing home residents (from CMS data) is 0.54.

Despite the strong correlation between underlying risk and nursing home deaths, many nursing homes successfully avoid high death rates, even in the hardest hit areas. In counties from the top 10th percentile of total COVID-19 death rates by May 24th, 2020, just over half of nursing homes with more than 100 beds had two or fewer COVID-19 deaths per 100 beds. By April 24th, 2021 this figure was still in excess of 20 percent. Moreover, a disproportionately small share of nursing homes account for the majority of COVID-19 deaths. As of September 2020, the top 5 (1) percent of nursing homes, which is just 754 (151) homes or 8.3 (2.4) percent of the nation's beds, ac-counted for 39 (14) percent of all COVID-19 deaths in nursing homes. By the end of April 2021, the top 5 (1) percent of nursing homes still accounted for 23 (8) percent of all COVID-19 deaths.

II.C. Analysis sample

The goal of this project is to explore whether observed nursing home characteristics can explain the variation in COVID-19 death rates. In particular, we test whether high-quality nursing homes, as measured by the CMS five-star ratings, did a better job of preventing deaths from COVID-19. Our initial sample contains 15,421 nursing homes reporting data to CMS at any point between May 25th, 2020 and July 18th, 2021. We lose 311 homes to inconsistent reporting and 205 homes be-cause no five-star rating data was available; thus, our main analysis sample consists of 14,905 nursing homes. Sample construction is discussed in Appendix A and summary statistics for these data are shown in Appendix Table A3.

Several variables used in our analysis require explanation. Data on nursing home characteristics comes from "Long-term Care: Facts on Care in the US", which is provided by a research center at Brown University.[11] Sample statistics are reported for observations with non-missing data. The acuity index, which ranges from zero to 23 in the data, measures of the amount of care needed by the average nursing home residents (higher values suggest more care). For the three variables – the share of residents using Medicaid, the acuity index, and for-profit status – the data contains values for all or none of them.

Nursing home star ratings come from data.medicare.gov. There are three separate ratings – in-spection, quality measures (QM), and staffing – which are aggregated by CMS into an overall rating.[12] All three ratings, as well as the overall rating, measure quality in integer "star" values, where five-star is the best possible rating and one-star is the worst. We discuss the construction of these ratings and briefly outline the literature that evaluates the ratings in Appendix Section C. In our empirical analysis, we measure quality using the overall five-star rating, reported by CMS in June of 2020. All data informing these ratings was collected prior to March, when it was first rec-ognized that COVID-19 was present and spreading in the United States.

In Table 1 , we present cumulative case and death rates over time, starting January 1st, 2020. Throughout our analysis, we focus on cumulative deaths at and between four dates: (i) May 24th, 2020, which precedes the summer 2020 COVID-19 wave and is the first date we observe in the CMS data; (ii) September 13th, 2020, which follows the summer wave, but precedes a September 17th CMS memo that altered visitation protocols in nursing homes (discussed below); (iii) December 6th, 2020, which is the last date available prior to the start of vaccine distribution; and (iv) April 25th, 2021, a point in which nearly all US nursing home residents had a full four months

to become vaccinated and COVID-19 death rates in nursing homes had flatlined (see Fig. 1). Resident and staff case variables measure confirmed cases reported to CMS. Nursing homes report both total deaths from any cause and COVID-19 deaths each week, which allows us to calculate deaths not from COVID-19.[13] Note that case (and death) rates are calculated as (cases/total beds)*100. County-level COVID-19 case and death totals come from the same source used by the CDC (USAFacts, 2020).

Table 1

COVID-19 Cases and Death Rates by Cause over Time in Nursing Homes Means (standard deviations).

Variable	As of 5/24/20	As of 9/13/20	As of 12/06/20	As of 4/25/21
Cumulative case and death rates (per 100 beds)				
Resident COVID-19 case rate	4.93	12.94	26.17	40.39
	(12.79)	(19.31)	(24.80)	(27.39)
Staff COVID-19 case rate	2.86	11.11	24.27	38.11
	(7.21)	(16.59)	(23.94)	(22.14)
Resident COVID-19 death rate	1.30	3.00	5.00	8.10
	(3.69)	(5.77)	(6.90)	(8.57)
Resident non-COVID-19 death rate	3.12	9.69	14.60	22.25
	(7.69)	(23.88)	(41.85)	(51.87)
County-level cumulative case and death rates (per 1000 residents)				
COVID-19 cases rate	2.86	15.35	33.75	94.50
	(4.76)	(9.97)	(15.85)	(24.77)
COVID-19 deaths rate	0.25	0.54	0.89	1.86
	(0.42)	(0.54)	(0/61)	(0.86)

This table reports mean, cumulative case and death rates at four points in time. The nursing home case and death rates reported in the top panel come from the CMS COVID-19 nursing home surveillance survey described in Section II.A. Note that the number of resident non-COVID-19 deaths is calculated by subtracting the reported number of COVID-19 deaths from the reported number of total deaths in the home. The county-level case and death rates are calculated using counts from USAFacts (2020).

In Table 2 , we present nursing home characteristics and relevant COVID-19 summary statistics for nursing homes with different overall star ratings as of September 13th, 2020.[14] Many nursing home characteristics change monotonically with the overall star rating including: total beds (decreasing); the share of female residents (increasing); the share of residents under 65, black, Hispanic, and on Medicaid (decreasing), and the acuity index (decreasing). The persistent relationship between these observed characteristics and the overall star rating might mean there is little informational content in the ratings. However, a simple regression of the overall star rating on observed characteristics only produces and R^2 of 0.21. Regarding COVID-19, higher-quality homes

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have lower resident case rates, but slightly higher staff rates. Moreover, these homes have notably smaller COVID-19 death rates, but higher non-COVID death rates. On average, higher-quality homes have experienced fewer staff shortages and PPE outages than lower-quality homes since May 24th, 2020. COVID-19 testing is not strongly correlated with overall quality.

Table 2

Descriptive Statistics in Nursing Homes, Overall 5-Star Rating.

	1-star	2-star	3-star	4-star	5-star
NH characteristics					
total beds	122.8	116.6	110.4	102.7	88.5
share of female residents	0.621	0.645	0.659	0.681	0.692
share of residents under 65 years old	0.277	0.252	0.233	0.195	0.159
share of black residents	0.271	0.206	0.177	0.127	0.084
share of Hispanic residents	0.072	0.063	0.053	0.038	0.032
share of residents on Medicaid	0.693	0.650	0.630	0.584	0.487
for profit	0.867	0.775	0.735	0.665	0.543
acuity index	12.25	12.22	12.20	12.16	12.14
Cumulative Cases and Deaths (9/13)					
any resident COVID-19 cases?	0.683	0.680	0.650	0.613	0.560
resident COVID-19 cases/100 beds	15.06	15.15	13.35	12.39	10.37
any staff COVID-19 cases?	0.877	0.855	0.854	0.844	0.832
staff COVID-19 case/100 beds	10.40	11.30	11.16	11.02	11.51
any resident COVID-19 deaths?	0.509	0.492	0.455	0.415	0.359
resident COVID-19 death/100 beds	3.324	3.539	2.999	2.922	2.531
any resident deaths not from COVID-19?	0.846	0.857	0.874	0.863	0.831
resident death not from COVID-19/100 beds	8.15	9.35	9.74	9.85	10.87
NH Staff and Supplies (since week ending 5/24)					
any nursing staff shortage?	0.477	0.410	0.383	0.359	0.311
any aide staff shortage?	0.522	0.452	0.428	0.399	0.346
any clinical staff shortage?	0.211	0.182	0.168	0.166	0.151
n95 mask outage?	0.208	0.185	0.177	0.157	0.155
surgical mask outage?	0.119	0.113	0.107	0.101	0.103
eye protection outage?	0.123	0.124	0.118	0.104	0.097
gown outage?	0.126	0.130	0.128	0.112	0.116
glove outage?	0.085	0.070	0.073	0.060	0.065
hand sanitizer?	0.093	0.075	0.068	0.061	0.065
COVID-19 Testing (week ending 9/13)					

This table reports average nursing home characteristics and COVID-19 metrics by the nursing home's CMS overall star rating. We measure overall star rating for each nursing home as reported in June of 2020, which is available for download on the CMS website. All nursing home characteristics, except total number of beds, are taken from

the LTC Focus database at Brown University. Total number of beds and all COVID-19 metrics come from the CMS COVID-19 nursing home surveillance data described in Section II.A. Case/Death information and Staff/Supply information are measured through September 13th, 2020; later dates are available upon request. Testing variables are reported for a single week (the week ending September 13th, 2020), as most testing-related questions were only asked from August 16th through November 22nd of 2020.

III. Statistical model and results

We estimate the effect of nursing home quality on the total number of nursing home deaths due to COVID-19 using a negative binomial model. That is, we write the probability of nursing home i having COVID-19 deaths Y_i as

$$\Pr\left(Y_i\right) = \frac{\Gamma\left(Y_i + \gamma_i\right)}{\Gamma\left(Y_i + 1\right)\Gamma\left(\gamma_i\right)} \left(\frac{\theta}{1 + \theta}\right)^{Y_i} \left(\frac{1}{1 + \theta}\right)^{\gamma_i} \tag{1}$$

where $\Gamma(\cdot)$ is a gamma function and γ_i and θ are the shape and scale parameters, respectively, of a gamma distribution. We allow γ_i to vary with nursing home and county characteristics, X_i, such that $\ln\left(\gamma_i\right) = X_i\beta$. The parameters (θ, β) are estimated via maximum likelihood. All models include state fixed effects and standard errors are clustered at the state level.

We are primarily interested in the impact that nursing home quality has on COVID-19 deaths; however, we also control for the following: (logged) total number of beds; the percent female, under 65 years old, black, Hispanic, and on Medicaid; whether the home is for profit; acuity index;[15] (logged) county population; and county COVID-19 cases per 1000 residents.[16]

III.A. COVID-19 mortality results

We estimate Eq. (1) across several different time periods. We report parameter estimates for the impact of nursing home quality, measured using the overall star rating, on COVID-19 deaths in the first seven rows of Table 3. [17] The first four rows use cumulative counts of COVID-19 deaths, starting January 1st, 2020 through May 24th, September 13th, December 6th (of 2020), and finally April 25th (of 2021).

Table 3

Negative Binomial Estimates, Impact of Overall Star Ranking on Deaths in Nursing Homes.

Period of analysis	Sample mean	Coefficients (standard errors) on Overall star ranking			
		2-star	3-star	4-star	5-star
		COVID-19 deaths			
(1) As of 5/24/20	1.702	0.000	−0.164	−0.142	−0.173
		(0.048)	(0.068)	(0.073)	(0.065)
(2) As of 9/13/20	3.670	0.033	−0.073	−0.092	−0.154
		(0.034)	(0.052)	(0.047)	(0.056)
(3) As of 12/06/20	5.570	0.019	−0.045	−0.040	−0.094
		(0.023)	(0.033)	(0.035)	(0.036)
(4) As of 4/25/21	8.704	0.026	−0.019	0.003	−0.072
		(0.024)	(0.034)	(0.030)	(0.032)
(5) Δ 9/13/20 – 5/24/20	1.969	0.001	−0.066	−0.096	−0.211
		(0.042)	(0.057)	(0.053)	(0.057)
(6) Δ 12/06/20 – 9/13/20	1.899	−0.005	0.001	0.008	−0.004
		(0.039)	(0.039)	(0.046)	(0.048)
(7) Δ 4/25/21 – 12/06/20	3.135	0.045	0.056	0.058	0.023
		(0.034)	(0.046)	(0.044)	(0.051)
		Non-COVID-19 deaths			
(8) As of 5/24/20	3.381	0.013	0.015	0.030	0.038
		(0.050)	(0.050)	(0.050)	(0.059)
(9) As of 9/13/20	10.146	0.034	0.070	0.088	0.114
		(0.029)	(0.031)	(0.034)	(0.041)
(10) As of 12/06/20	15.383	0.032	0.074	0.105	0.123
		(0.025)	(0.025)	(0.030)	(0.032)
(11) As of 4/25/21	23.170	0.055	0.092	0.127	0.148
		(0.019)	(0.021)	(0.025)	(0.030)
(12) Δ 9/13/20 – 5/24/20	6.765	0.039	0.079	0.103	0.137
		(0.026)	(0.028)	(0.030)	(0.033)
(13) Δ 12/06/20 – 9/13/20	5.236	0.059	0.135	0.175	0.200
		(0.023)	(0.024)	(0.029)	(0.031)
(14) Δ 4/25/21 – 12/06/20	7.787	0.098	0.150	0.202	0.239
		(0.023)	(0.028)	(0.033)	(0.036)

Standard errors allow for arbitrary correlation across observations within a state. Other controls in the models include logged total beds; percent of residents that are female, under 65, black, Hispanic, on Medicaid (along with corresponding indicators for missing variables); for-profit status; acuity index; county-level COVID-19 cases per

1000 residents (measured 23 days prior to death); logged county population; and a full set of state fixed effects.

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Our results show that through September 13th, 2020, higher-quality nursing homes experienced fewer deaths from COVID-19. For example, nursing homes with a five-star rating had a COVID-19 death rate that was about 15 percent lower than those with a one-star rating. Rows 3 and 4 show that five-star homes experienced statistically fewer cumulative COVID-19 deaths than lower-quality homes as of December 6th, 2020 and April 25th, 2021; however, these effects are driven entirely by deaths leading up to September, as is shown in rows 6 and 7.[18]

We discuss above that the CMS data likely undercounts the true number of COVID-19 deaths in nursing homes, as homes were given the choice on May 24th to report deaths from the prior week or cumulative deaths since January 1st. To show that our results are not somehow driven by this measurement error, in row 5 we change the dependent variable to deaths between September 13th and May 24th (of 2020), which should be measured accurately in the CMS data. These results are similar to our cumulative September 13th findings. Estimated quality effects as of May 24th are also very similar to the results for mid-September (row 1).

We will return to the other two sets of results in Table 3 later in Section III.C

In Table 4 we show that our main findings – the impact of overall star quality on cumulative COVID-19 deaths as of September 13th, 2020 – are robust to a number of alternative empirical specifications, including (row 2) using a Poisson model with clustered standard errors, as suggested by Cameron and Trivedi (2005); using linear models with (row 3) ln(deaths+1), (row 5) the inverse hyperbolic sine of deaths, or (row 7) the inverse hyperbolic sine of death *rates* as the dependent variable; (rows 4, 6, 8) adding county fixed effects to any of the prior three models; (row 9) adding controls for staff hours per resident day, which may be correlated with home quality conditional on number of beds; and (row 10) adding controls for the county's republican vote share in the 2016 presidential election, which others have found is negatively correlated with COVID-19 precaution taking, such as compliance with stay-at-home orders (Charoenwong et al., 2020) and vaccination rates (Agarwal et al., 2021).[19] We will discuss the results in row (11) and (12) below.

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Table 4

Robustness Analysis, deaths measured 9/13 unless stated otherwise.

Model	Sample mean	Obs	Overall Star Rating			
			2-star	3-star	4-star	5-star
(1) Baseline (Table 3, row 2)	3.67	14,905	0.033	−0.073	−0.092	−0.154
			(0.034)	(0.052)	(0.047)	(0.056)
(2) Model (1), but Poisson	3.67	14,905	0.052	−0.126	−0.100	−0.169
			(0.048)	(0.064)	(0.052)	(0.054)
(3) Model (1) but OLS with ln(deaths+1)	0.82	14,905	0.030	−0.036	−0.042	−0.074
			(0.022)	(0.031)	(0.024)	(0.031)
(4) Model (3) but add county FE	0.82	14,905	0.024	−0.068	−0.061	−0.096
			(0.028)	(0.040)	(0.030)	(0.036)
(5) Model (1) but OLS with inverse hyperbolic sine of deaths	1.02	14,905	0.034	−0.043	−0.053	−0.094
			(0.028)	(0.039)	(0.030)	(0.038)
(6) Model (5) but add county FE	1.02	14,905	0.026	−0.082	−0.076	−0.121
			(0.034)	(0.049)	(0.037)	(0.044)
(7) Model (1) but OLS with inverse hyperbolic sine of death rate (per 100 beds)	1.02	14,905	0.034	−0.043	−0.053	−0.094
			(0.028)	(0.039)	(0.030)	(0.038)
(8) Model (7) but add county FE	1.02	14,905	0.026	−0.082	−0.076	−0.121
			(0.034)	(0.049)	(0.037)	(0.044)
(9) Model (1) but add controls for staff hours per resident day	3.67	14,558	0.038	−0.071	−0.079	−0.124
			(0.034)	(0.051)	(0.047)	(0.056)
(10) Model (1) but add controls for republican share of county	3.67	14,888	0.033	−0.073	−0.091	−0.154
			(0.034)	(0.052)	(0.047)	(0.055)
(11) Model (1) but add controls for any staff and resident cases, as well as counts	3.67	14,905	−0.045	−0.082	−0.169	−0.229
			(0.038)	(0.031)	(0.046)	(0.058)
(12) Model (1) but add controls for shortage counts	3.67	14,905	0.043	−0.060	−0.076	−0.136
			(0.033)	(0.051)	(0.045)	(0.054)

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Standard errors allow for arbitrary correlation across observations within a state. Other controls in the models include logged total beds; percent of residents that are female, under 65, black, Hispanic, on Medicaid (along with corresponding indicators for missing variables); for-profit status; acuity index; county-level COVID-19 cases per 1000 residents (measured 23 days prior to death); logged county population; and a full set of state fixed effects.

III.B. Mechanisms

How did high-quality nursing homes manage to prevent COVID-19 deaths? CMS first offered nursing homes and assisted living facilities guidelines for preventing and managing COVID-19 cases on March 13th, 2020. Since then, these guidelines have been updated and expanded repeatedly as the public health community has learned more about the virus. The CDC's advice is expansive but is linked by several common themes (CDC, 2020d): First, keep COVID-19 out by limiting visitors and encouraging staff to stay home when ill. Second, clean hands, surfaces, and equipment thoroughly and repeatedly. Third, staff should closely monitor residents for signs of the virus, test symptomatic individuals and close contacts, and isolate those who are symptomatic. Fourth, staff should use PPE at all times. Fifth, after vaccines became available in December of 2020, all residents and staff should be vaccinated.

These recommendations guide our exploration of the potential mechanisms that enabled higher-quality nursing homes to prevent COVID-19 deaths. First, we examine whether higher-quality nursing homes were better able to prevent COVID-19 from entering the home at all. In the first block of results in Table 5 we report results from linear probability models that regress an indicator of whether a home has a single COVID-19 case among its staff (row 1) or among its residents (row 3) as of September 13th, 2020 on the home's overall star rating and the same set of covariates from our earlier analysis. These results show that higher-quality nursing homes, despite lowering the death rate, were not able to prevent COVID-19 from entering the home. Second, we test whether higher-quality nursing homes were able to prevent the spread of the virus, conditional on having at least one case. In rows 2 (4) of Table 5, we report estimates from a linear regression of log staff (resident) cases on the overall rating and covariates, only for homes with at least one staff (resident) case. The results show that while higher-quality nursing homes were not more effective that lower-quality homes in preventing the spread of COVID-19 among their staff, these homes were more effective at preventing the virus' spread among their residents. Conditional on having at least one case, all else equal, five-star homes saw roughly 15 percent fewer cases than one-star homes. As of September 13th, among homes with at least one case, the average home has 24.5 cases per 100 beds, meaning this difference amounts to about 3.7 cases per 100 beds.[20]

Table 5

Negative Binomial Estimates, Impact of Overall Star Ranking on Non-COVID Deaths in Nursing Homes.

Period of analysis	Obs.	Sample mean	Coefficients (standard errors) on Overall star rating			
			2-star	3-star	4-star	5-star
			As of 9/13/2020			
(1) Any staff cases?	14,905	0.850	−0.010	−0.005	0.000	0.000
			(0.008)	(0.010)	(0.009)	(0.013)
(2) ln(staff cases)	12,669	2.044	0.088	0.011	0.046	0.072
			(0.027)	(0.021)	(0.029)	(0.030)
(3) Any resident cases?	14,905	0.629	0.024	0.014	0.009	−0.005
			(0.010)	(0.010)	(0.010)	(0.010)
(4) ln(resident cases)	9392	2.385	0.027	−0.095	−0.087	−0.147
			(0.040)	(0.047)	(0.049)	(0.040)
			From 9/13/2020 to 4/25/2021			
(5) Any staff cases?	14,891	0.993	−0.001	0.001	0.000	0.002
			(0.002)	(0.002)	(0.002)	(0.001)
(6) ln(staff cases)	14,782	9.959	0.031	0.084	0.116	0.146
			(0.022)	(0.025)	(0.023)	(0.030)
(7) Any resident cases?	14,891	0.910	0.009	0.010	0.018	0.010
			(0.008)	(0.007)	(0.009)	(0.009)
(8) ln(resident cases)	13,516	2.849	−0.010	0.018	0.036	−0.015
			(0.035)	(0.041)	(0.035)	(0.044)

Standard errors allow for arbitrary correlation across observations within a state. Other controls in the models include logged total beds; percent of residents that are female, under 65, black, Hispanic, on Medicaid (along with corresponding indicators for missing variables); for-profit status; acuity index; county-level COVID-19 cases per 1000 residents (measured 23 days prior to death); logged county population; and a full set of state fixed effects.

In the second block of results in Table 5, we re-estimate the models from rows (1) through (4) but use cases occurring between September 13th, 2020 and April 25th, 2021. The fraction of homes with any staff and resident cases is nearly one, as the winter wave is in the middle of this time period, so it is not a surprise that the quality measure explains little for these outcomes. Consistent with our COVID-19 deaths results earlier, past September there is no difference between low- and high-quality homes in terms of resident COVID spread.[21]

If high-quality nursing homes prevented deaths not by keeping COVID-19 out of the nursing home entirely, but by preventing spread among residents within the home, the next obvious question is: how? We test several plausible theories. First, both identifying and isolating residents with COVID-

19 symptoms requires a capable staff that is of an adequate size; thus, we first test whether high-quality nursing homes have had fewer staffing shortages during the pandemic, which may explain their ability to prevent COVID-19 cases among their residents.

In Panel A of Table 6 , we present results from three linear probability models that regress indicators for self-reported staffing shortages (nurses, aides, and clinical staff) at any point between May 24th and September 13th of 2020 on the overall star rating and other controls. Row 1 shows that, all else equal, five-star facilities were 10.7 percentage points less likely to have a nursing shortage over this time period than a one-star facility. The gap is 11.8 percentage points for aides (row 2) and 3.9 percentage points for clinical staff (row 3). All effects are statistically significant at the one-percent level. The estimates are 28, 28, and 23 percent, respectively, of the sample mean for the outcomes.

Table 6

OLS/Maximum Likelihood where Outcomes are Different Measures of Nursing Home Quality.

Dependent variable	Sample mean	Coefficient (Standard error) on Overall starrating			
		2-star	3-star	4-star	5-star
A: Staff shortage (any 5/24/20 – 9/13/20)					
Any nursing shortage?	0.378	−0.045 (0.011)	−0.068 (0.014)	−0.085 (0.016)	−0.107 (0.014)
Any aide shortage?	0.419	−0.050 (0.012)	−0.071 (0.017)	−0.093 (0.018)	−0.118 (0.016)
Any clinical staff shortage?	0.172	−0.021 (0.010)	−0.033 (0.014)	−0.032 (0.012)	−0.039 (0.012)
B: PPE shortage (any 5/24/20 – 9/13/20)					
N95 outage?	0.173	−0.009 (0.009)	−0.012 (0.011)	−0.027 (0.011)	−0.020 (0.013)
Surgical mask outage?	0.107	−0.003 (0.009)	−0.004 (0.011)	−0.009 (0.011)	−0.001 (0.014)
Eye protection outage?	0.111	0.009 (0.008)	0.008 (0.010)	−0.002 (0.011)	−0.001 (0.012)
Gown outage?	0.121	0.006 (0.008)	0.008 (0.010)	−0.007 (0.009)	0.000 (0.013)
Glove outage?	0.069	−0.012 (0.007)	−0.006 (0.008)	−0.020 (0.008)	−0.014 (0.010)
Hand sanitizer outage?	0.071	−0.016 (0.009)	−0.020 (0.008)	−0.028 (0.009)	−0.023 (0.010)
C: Testing procedures (week ending 9/13/20)					
Time to test	2.396	0.003 (0.064)	−0.061 (0.089)	−0.052 (0.062)	−0.103 (0.072)
Test asymptomatic residents after a new resident case?	0.509	0.067 (0.026)	0.018 (0.029)	0.087 (0.033)	0.045 (0.029)
Test asymptomatic staff after a	0.445	0.070	0.033	0.068	0.060

Standard errors allow for arbitrary correlation across observations within a state. Other controls in the models include logged total beds; percent of residents that are female, under 65, black, Hispanic, on Medicaid (along with corresponding indicators for missing variables); for-profit status; acuity index; county-level COVID-19 cases per

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1000 residents (measured 23 days prior to death); logged county population; and a full set of state fixed effects. All models are estimated via OLS except "time to test", which is modeled as an ordered logit that is estimated via MLE.

Nursing homes may also prevent the spread of COVID-19 by following the CDC recommendation that all nursing home staff use PPE and wash their hands frequently. While these behaviors cannot be observed in our data, we are able to measure shortages in PPE (n95 masks, surgical masks, eye protection, gowns, and gloves) and hand sanitizer; thus, we test whether higher-quality facilities were less likely to have experienced such shortages between May 24th and September 13th of 2020.[22] We again use linear probability models and control for the same set of potential confounders as above. Results are presented in Panel B of Table 6. For all five forms of PPE and hand sanitizer, the impact of quality is modest. There is suggestive evidence that higher-quality facilities have fewer shortages of all equipment except gowns, but effects are only statistically significant for a subset of coefficients in the N95 mask, glove, and hand sanitizer regressions.[23]

Higher-quality homes may also do a better job of testing residents for the virus. Fortunately, the CMS data allows us to generate a number of measures of testing intensity and speed.[24] First, nursing homes report for the week ending September 13th that receiving test results takes "less than a day", "between one and two days", "three-to-seven days", or "more than seven days." Second, nursing homes report whether they tested any asymptomatic residents during the week ending September 13th *in response to* a new positive case.[25] Third, homes report whether they have tested asymptomatic staff or residents when there is no knowledge of exposure. Finally, homes report whether they have their own testing machine.

In Panel C of Table 6, we present estimates of the effect of nursing home quality on these testing measures. We find that higher-quality homes receive test results faster than lower-quality homes (row 1) but these effects are not precisely estimated. Higher-quality homes are statistically more likely to test asymptomatic residents (row 2) and staff (row 3) following a new case; they are also statistically more likely to have ever tested non-exposed residents (row 4), but are no more likely to test non-exposed staff (row 5). There is no relationship between home quality and the likelihood of having an in-home testing machine (row 6).

Finally, we examine whether higher-quality homes were more likely to vaccinate residents and staff. Starting with the May 30th, 2021 survey, CMS began to ask nursing homes about the number of residents and staff that were fully vaccinated. In Panel D of Table 6, we report results from regressions that have the share of current residents and staff vaccinated as of June 20th, 2021 as the outcomes of interest. Here, there is a monotonic relationship between facility quality and vaccination rates. All else equal, resident and staff vaccination rates are 5.6 and 8.3 percentage points higher in five-star homes than in one-star homes. Both results are statistically significant at conventional levels and represent 7 and 14.6 percent increases, respectively, over the sample means of these outcomes.

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Overall, higher-quality nursing homes prevent COVID-19 deaths, not by preventing the disease from entering the home, but by preventing its spread among residents. The methods by which homes prevent the spread are consistent with CDC guidelines. Higher-quality homes had more testing, got tests results faster, and had fewer PPE and staff outages. Given that the negative association between home quality and COVID-19 deaths does not persist past September of 2020, higher vaccination rates at high-quality homes clearly cannot explain the relationship. That said, we take the vaccination results as further evidence that high-quality homes followed CDC guidance along observable dimensions and, thus, likely followed along unobservable dimensions as well.

III.C. Non-COVID and total mortality

In addition to PPE use, adequate staffing, and robust testing, an early prevention method used by virtually all nursing homes was to refuse all outside visitors. On March 13th, 2020, CMS issued memorandum QSO-20–14-NH recommending that all facilities nationwide "should restrict visitation of all visitors and non-essential health care personnel, except for certain compassionate care situations, such as an end-of-life situation" (CMS 2020a). The memorandum also advised cancelling "communal dining and all group activities, such as internal and external group activities." On May 18th, CMS issued memorandum QSO-20–30-NH, that provided a three-phase reopening plan for nursing homes (CMS, 2020d). The plan did not allow for outside visitors until a nursing home entered phase three, which (loosely) required (i) that COVID-19 cases in the outside community have declined for 14 consecutive days, (ii) no new cases within the nursing home for 28 days, (iii) no staff or PPE shortages, and (iv) homes have the capacity and supplies to test residents and staff weekly. In light of the continued spread of the virus and the strict reopening criteria, many nursing homes were still closed to visitors months later. Finally, on September 17th, 2020, CMS issued memorandum QSO-20–39-NH, that relaxed visitation guidelines, citing resident distress (CMS, 2020b). This memorandum was updated again on March 10th, 2021 in light of vaccine distribution.

In Fig. 2 , we use data from SafeGraph to document aggregate foot traffic to US nursing homes from the start of 2019 through mid-2021.[26] The figure shows (i) a large drop in nursing home foot-traffic in late January of 2020, approximately when the first COVID-19 case was discovered in the US and the World Health Organization (WHO) declared COVID-19 a global health emergency, followed by (ii) another drop in early March, when WHO declared COVID-19 a pandemic and President Trump declared a national emergency. Foot traffic rose slowly through August of 2020, but surprisingly, has remained mostly unchanged since then, despite several changes in the CMS visitation guidelines outlined above.
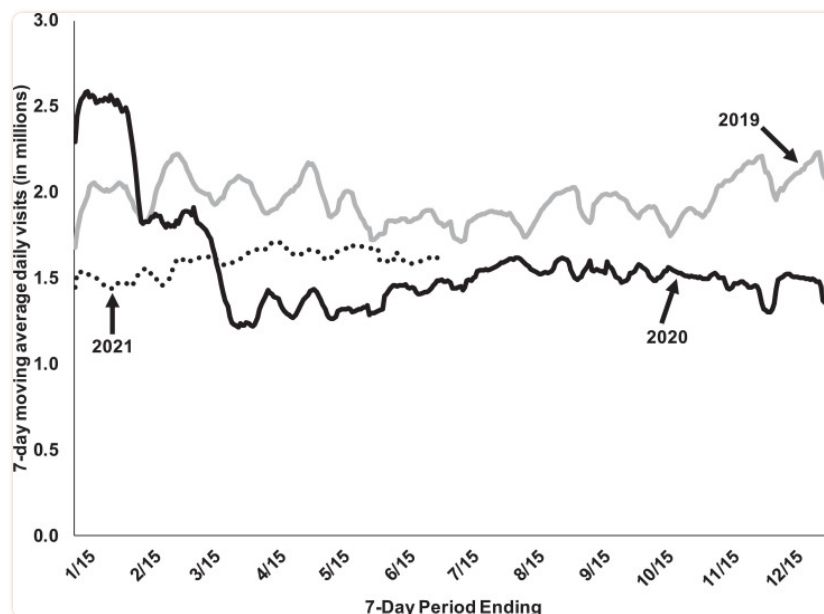
[Fig. 2](#)

Total Visits to US Nursing Homes by Calendar Day, Safegraph

This figure plots the total number of visitors to US nursing homes (NAICS code 623,110) by calendar-day, from the first of January 2019 through the end of June 2021. The data come from SafeGraph's Weekly Places Patterns data series, which uses cell phone location services to produce hourly counts of foot traffic to about 4 million points of interest in the US. The aggregate counts provided here are adjusted for the number of devices per person in the state, as is recommended by SafeGraph.

There may be some unfortunate downsides to these early policies that could have negatively impacted nursing home resident health. First, these policies may have generated extreme isolation among facility residents. A survey of nursing home residents from early fall of 2020 documents massive declines in resident interactions with outside visitors and fellow residents, trips off site, and even trips outside for fresh air ([Montgomery et al., 2020](#)). In the introduction, we noted that some observers caution that among individuals with Alzheimer's, isolation may be deadly. Second, without group meals or meals supervised by staff, residents may not have been eating as well. In their analysis of Connecticut nursing homes during the early stages of COVID, [Levere et al. (2021)](#) found a large decline in patient weight among residents, a change they attribute to the isolation caused by facility safety protocols. Third, the lack of communal activities may have reduced exercise and increased the time patients spent in bed. [Levere et al. (2021)](#) also found increases in bed sores among nursing home residents during the early stages of COVID. Fourth, a number of authors have documented large declines in medical care use, especially in the Medicare population, as a result of the COVID-19 pandemic ([Bosworth et al., 2020](#); [Ziedan et al., 2020](#); [Cantor et al., 2020](#); [Clemens et al., 2021](#)). We suspect declines in medical care use were mostly generated by precautionary behavior on the part of residents and their families; even the most stringent stay-at-

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